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ECONOMIC ESSAYS

CONTRIBUTED IN HONOR OF

JOHN BATES CLARK

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John Bates Clark

ECONOMIC ESSAYS

CONTRIBUTED IN HONOR

OF

JOHN BATES CLARK

EDITED BY

JACOB H. HOLLANDER

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ECONOMIC ESSAYS

CONTRIBUTED IN HONOR OF

JOHN BATES CLARK

JOHN BATES CLARK AS AN ECONOMIST

Jacob H. Hollander

The appraisal of scientific place is never easy. In politics and in affairs there is definite service that can be evaluated in relation to positive phenomena. Not so with stuff of the mind. Ordered knowledge grows by assembly, with, at best, "a master builder" from time to time giving new direction or changed emphasis. The years lend perspective and engender piety, and the historian of thought perforce ventures judgments. But of the living there is likely to be either adulation or hypercriticism.

This is why we have no real history of political economy but only surveys of economic doctrines. No one has set forth with finality the contributions of Ricardo or of Malthus or of John Stuart Mill. Even one hundred and fifty years after, the commemorative addresses lately given in this country and abroad present widely different estimates of the achievement of Adam Smith. Sometimes a gifted student has surveyed the life and work of his teacher and been able to salvage objectivity from gratitude and affection. But the gift is not common. If English-speaking economists have been remiss in estimating their living great, it is because of the intricacy of the task rather than of the grudge of indifference.

The real work of John B. Clark as an economist lies within the thirteen years from 1886 to 1899. There were earlier path-finding papers in *The New Englander,* and a rich bibliography attests the mental vigor of later years. But *The Philosophy of Wealth* first presented in something approaching systematic form Clark's basic ideas, and with *The Distribution of Wealth* the exposition of his philosophy in all but its related phases and its specific applications may be regarded as complete.

These thirteen years make up an important epoch in the development of American economic thought. The association

with Clark is organic relation rather than objective coincidence. In 1876 Dunbar had admitted, "The United States have thus far done nothing toward developing the theory of political economy," and four years later Cliffe Leslie had particularized: "American political economy is in the main an importation from Europe, not an original development." But the extraordinary changes in American economic organization were already beginning to exert influence. A new spirit of realistic study of surrounding phenomena was becoming manifest, with an accompanying reflex of doctrinal controversies then raging among English economists.

More notable than these factors was the return to the United States in the early eighties of a remarkable company of young scholars from post-graduate study in German universities. Their arrival and activity effected a virtual renascence in American economic thought. With others trained in this country lodgment was found in leading universities; student bodies gathered, and productive scholarship developed.

The dominant characteristics of the group were an avowal of the historical inductive method, and an election in the main of concrete problems for inquiry. At Harvard, Taussig traced the growth and influence of American protectionism; at Yale, Hadley concerned himself with railway transportation, and Farnam with social problems; at Columbia, Seligman studied the theory and practice of public finance and Mayo-Smith pursued statistical inquiries; at Johns Hopkins, Ely made pioneer studies of local taxation and of the labor movement; at Pennsylvania, James studied municipal economics and at Michigan, H. C. Adams became identified with fiscal studies. A "statement of principles" proposed and accepted in the formation of the American Economic Association at Saratoga in 1885 as "a general indication of the views and the purposes" of the founders contained the declaration: "While we appreciate the work of former economists, we look not so much to speculation as to the historical and statistical study of actual conditions of economic life" for the further development of political economy.

In the organization and early activity of the American Economic Association the extreme "historical" tendency in the United States spent itself. Stirred by militant challenge, heartened by clearness of issue, supplied with convenient chan-

nels of publication, the older group of speculative thinkers to whom the work of Roscher, Cliffe Leslie and Ingram seemed amendatory rather than revolutionary drew to the fore. The impulse took form in the founding of the *Quarterly Journal of Economics* in 1886, with Dunbar's fine inaugural on "The Reaction in Political Economy" sounding the key-note. It developed as controversial activity centering about the doctrinal contributions of Marshall, Walker and somewhat later of Böhm-Bawerk and the Austrian economists. Exhibiting every variety of intellectual effort from stimulating analysis to hair-splitting dialectic, the results of this sustained contest in relation to American economic thought were negative and disjointed. A constructive unified philosophy was to proceed from another quarter.

Included in the younger group of the so-called "historical" economists were a quota—John B. Clark, Simon N. Patten, Franklin H. Giddings—inclined by habit of mind to deductive reasoning. For a season their studies were integrated. Then related areas drew off his associates while Clark continued to extend his inquiries deeper into the field of economic philosophy. The pace was deliberate and progress gradual. But a succession of journal papers became so many milestones, until in 1899 *The Distribution of Wealth* summarized with rare amenity of form the speculations of a profound thinker and the lessons of an inspiring teacher. Thereafter for a decade Clark's doctrines dominated economic philosophy in the United States, yielding only with dawning uneasiness as to the prematurity of speculative inquiries and with increasing resort to realistic studies.

This rescue of economic study in the United States from the historical local inquiry into which it threatened to lapse and its restoration to the traditional search for the uniformities underlying economic conduct seem to me Clark's greatest service. There may be question as to the full validity of his logical procedure and uncertainty as to the outright permanence of his conclusions. But the history of our science warns off from counsel of perfection. "A body of principles grows like a living body; it is not 'builded as a city that is compact together' "—a sage reminds us.

What Clark did, as the great masters had done before him, was to face a changed economic world, to slough off the conventional formulæ current in the closet and in the market place

and literally to *think* his way through mass and detail to what seemed to him absolute verities.

In the inveterate quality of his reasoning, in the resistless force of his penetration, in the logical symmetry of his conclusions there is something reminiscent of Ricardo. Coming at a time when spadework threatened to dispossess architecture, this reassertion of the scope and calibre of the economist's task infused life into automatism. If, thereafter, the mantle proved too ample for narrower shoulders, if thought yielded to commentation, text-writing and hypercriticism—such is the price of rebound. Clark drew aside the curtain and American economists from his day have been stirred—and lashed—by the vista beyond.

The positive contributions of Clark to American economic thinking will reflect, in estimate, the personal reactions of the reviewer. Not enough time has passed for a final precipitate, and gradation is bound to vary with interest and response.

At least one student has found chief aid in Clark's underlying distinction between "static" and "dynamic" in economic abstractions. Tracing back, subconsciously, to Adam Smith's "stationary" in contrast to "declining" or "progressive" state of society—Clark's alignment, sharply defined and amply expounded, cleared the ground at the very outset for orderly analysis. More than any single concept it has rid the area of American economic philosophy of the twin "idols" of social speculation—varying assumption and unexpressed implication.

As an intellectual achievement Clark's construct of "the ultimate standard of value"—expounded to a small company of students at the Johns Hopkins University in 1892, set forth in a classic paper in the *Yale Review* in the same year, and incorporated in *The Distribution of Wealth* in 1899—is likely to be given first place. A *tour de force* in pure reasoning, its scientific place is distinguished. Eighty years before, Ricardo had reluctantly admitted "the non-existence of any measure of absolute value," adding "there is not and can not be an accurate measure of value, and [that] the most that any man can do is to find out a measure of value applicable in a great many cases, and not very far deviating from accuracy in many others." Ricardo's frank agnosticism was succeded by a half century of thinly veiled empiricism. The post-classicists illumined the gap

but failed signally to bridge it. It remained for Clark to press relentlessly forward and to lay this veritable corner-stone of a pure economics.

The history of doctrinal thought is largely a succession of dogmatism, criticism and synthesis. Clark began his systematic work at a time when Roscher and Jevons, from quite different directions had given shattering blows to the classical theory. Even after a quieting interval, the effect of the impact was to revive in acute form the old opposition in economic approach, extending as far back as the controversies of Malthus and Ricardo—consumer or producer, demand or supply, utility or cost. Marshall in England and Clark in the United States adjusted the situation in fine spirit of scientific continuity. From their day forth we have heard less of "shunting the car of economic science on to a wrong line." The shield was seen as a two-sided affair; interpretation corrected textual rigor, and the economic student was freed from a Calvinistic alternative. In all of this Clark's work was constructive unification, not pallid accord. Disciples carried the process to completion, but the impetus had been imparted.

Clark's work as an economist has been both the creative activity of a philosopher and the specific service of a scholar. But it ranges wider. For more than a generation he has been a teacher to students, a master to disciples, a critic to fellow craftsmen. In all of these relations he has shown a serenity of mind, a sweetness of manner, a gentleness of spirit that make up "eine schöne Seele." No other among American economists has come so near to founding a "school." But over and above the impress which sheer intellectuality and rare originality have imparted, has been the contagion of mental tolerance and scientific generosity. It is in this spirit that the whole fraternity of political economists, far beyond the small company who here in homage lay before him their offerings, find it a delight to do him honor.

STATIC ECONOMICS AND BUSINESS FORECASTING

Benjamin M. Anderson, Jr.

The economic theorist has devoted himself much too exclusively to the laws of completed equilibrium, to static theory so-called, to theory concerned with what prices and costs and the proportions of the productive forces would be if markets were fluid and if industry were in perfect balance. Business forecasting, on the other hand, has been concerned much too exclusively with the sequence and flow of events, losing sight of the goal in watching the motions of the runners.

The laws of economic equilibrium have been elaborately worked out in that great body of doctrine which associates itself with the names of Adam Smith and his followers. Landmarks in the history of this theory are Adam Smith, Ricardo, John Stuart Mill, J. B. Say, J. E. Cairnes, Menger, Böhm-Bawerk, Wieser, and John Bates Clark. These writers have worked out the laws of prices and costs. They have explained the laws governing the return to the different productive forces, as land, labor, capital, and enterprise. They have explained the conditions governing the apportionment of the productive forces, land, labor, and capital, among different industries, and the conditions under which one or another of the productive forces will be transferred from one industry to another, from one part of the country to another, or even from one country to another. Ideas on these topics which were vague in Adam Smith's discussion have become increasingly precise and quantitative with the refinement and polishing of the tools of the economist's thought. And the beautiful application of the idea of "the margin," particularly in the writings of Professor Clark, has made it possible to indicate not merely the conditions under which capital or labor will flow from one industry to another, but also, in principle, very precisely the point at which they will cease to flow.

The idea of balance and proportion underlies the whole of the

static doctrine. The forces governing the international movements of goods, for example, the forces governing the international movements of gold, the larger laws of the balance of trade and of the international balance of indebtedness—static theory has gone far in explaining these things. Static theory has analyzed the conditions which make certain factors of production easily mobile while others are fixed or relatively immobile.

One of the most significant of the generalizations of the static economist has been that worked out by J. B. Say and beautifully stated in English by J. E. Cairnes—the doctrine that there can be no such thing as a general overproduction, the doctrine that consumption and production grow together, and that increasing production leads to increasing consumption—so long as the proportions of industry are kept right. That there can be overproduction in particular lines the doctrine grants—too much of one thing produced and too little of another. Particular overproduction can, moreover, demoralize the whole economic fabric and force general reaction and disorder. But business can be counted on to go on steadily so long as equilibrium is maintained.

Wheat comes into the market as supply of wheat. Well and good. But the wheat produced constitutes demand for silk, for sugar, for automobiles, for other things that the wheat producer wants. That is why he is producing wheat. Silk comes into the market as supply of silk, but also as demand for other commodities which the silk producer wants. And so with every other commodity—it is supply of its own kind, but it is demand for other things. And therefore, in the aggregate, supply and demand are not merely equal; they are identical, since every commodity may be looked upon as supply or demand.[1]

Conclusions on all of these topics have much to do with the problems in which the business forecaster is interested or ought to be interested. And yet practical business men and practical students of business forecasting for the most part either have not studied this static theory at all, or else after trying to study it,

[1] This brief statement involves a use of the terms, demand and supply, which does not fit into our conceptions of demand and supply as expressed in the modern curves, which involve the idea of money and a fixed value of money. (*Cf.* my *Value of Money*, Chapter II.) If it were necessary for the purposes of the present article to be particularly precise in my reference to specific doctrines, I should want to reformulate this, but it is adequate for present purposes to state the doctrine in the way in which Cairnes states it.

have found little in it that bears upon the laws of economic change or that enables them to tell which factors move first and which come after. Pure economic theory has largely abstracted from the element of *time* and the *sequence* of events in time, while it is precisely this sequence of events with which the business forecaster is most immediately concerned. The business forecaster has thus been driven to the study of business history rather than theory, and has tried to deduce a certain theory (or a multiplicity of theories) of his own from the study of history, ignorant of or contemptuous of the static theory. He is interested in "dynamics," not in "statics."

Moreover, the business forecaster is increasingly concerning himself only with that part of business history which can be measured in statistical terms. At the extreme he ignores not only economic theory but also the rich body of historical facts which cannot be quantitatively stated. His ideal seems to be to develop mathematical laws which will tell him not merely which factors change first, but also what percentage changes in other factors will follow from a given magnitude of change in a particular factor, and which ones will come three months later, which ones four and a half months later, and which ones four and three-fourths months later. In extreme cases he does not know enough of economic theory or of economic history to realize that such an undertaking is foredoomed from the beginning, and that if laws of this kind could be worked out for a given period in the past, there is no guaranty at all that such laws would apply at any time in the future! I hasten to add that the extreme case I have just been describing is a caricature which does not justly describe any living business forecaster. I claim the privilege which the static theorist has always claimed of studying tendencies in their pure form, even though concrete human nature always involves complexities!

It must be apparent, however, that in ignoring the static conceptions and the beautifully worked out static doctrines the statistical business forecaster is throwing away a most valuable aid. Static theory does describe underlying economic forces. If it tells nothing about the rate at which they are moving, it does at least indicate the directions in which they move, it indicates their relative power, and it indicates their relations *inter sese*. The student of change who knows the goal toward which his

forces are tending is certainly much better informed than the man who does not know what the goal is, but merely knows that change is taking place and that some things change first and others later.

Not all students of static economics have been neglectful of the laws of change. John Stuart Mill undertakes an analysis of the phenomena of prosperity, crisis, and depression which, considering the time at which he wrote is marvelously realistic. Professor Clark has been keenly interested in the problems of dynamics, while Joseph Schumpeter [1] has developed an interesting theory of business crises which rests the whole story in the sharp contrast between static and dynamic tendencies.

The business cycle for Schumpeter starts in a static equilibrium in which costs are proportionate to prices, industry is in balance, and the general range of economic activities is understood by those who take part in it. As a consequence, in such a situation business calculations are easily made and, assuming no large changes in the course of events, are accurately made. Then comes a dominating personality, the undertaker, with a new plan. Backed by new bank credit, created by the banker who believes in him, he goes into the market, whips control of labor and supplies from the hands of men engaged in production along old lines, and starts his new enterprise. He is successful. Others seeing his success follow him. The movement toward new ways of doing things grows and is overdone. There is a disturbance in the equilibrium of prices and costs. Men working on old lines find their costs increasing and perhaps their markets dwindling. Others may find that the changes work to their advantage. But in any case the equilibrium is broken and the situation is changed. The calculations and plans which had been made earlier, even if accurately made on the basis of the data at the time they were made, cease to be applicable since the data themselves have changed. Finally there comes a time when it is necessary to pause, to take stock, to readjust. The crisis comes which "holds court over values and prices" and brings hopes and aspirations face to face with reality. The crisis is a process of "statification," a process of restoring the static equilibrium which the preceding period of prosperity and change had broken. When the static equilibrium is restored, the upward movement can begin again.

[1] *Theorie der Wirtschaftlichen Entwicklung.*

I do not regard Schumpeter's theory of crises as an adequate theory. I hasten to add that my brief statement of it does not do justice to the vivid brilliancy of Schumpeter's thought. But one element in it is highly significant. Schumpeter's account of the causes of dynamic change is inadequate, and he attempts no quantitative statistical measurement either of the extent of change or of the sequences within the movement. But the static-dynamic contrast which he employs is, I believe, fundamental to any sound theory of crises. The picture of industry out of balance being restored to balance in the course of a crisis and the ensuing depression is essentially true. That is what crises and depressions do, and it is the accomplishment of this which makes possible a new upward move. A crisis never accomplishes it perfectly; always there are discrepancies between an actual situation and an ideal static equilibrium. But the forces which lead to a crisis are forces which are throwing economic life out of balance. The lack of balance may manifest itself in the proportions of industry—as too much agriculture and too little manufacturing; or in the international trade balance; or in the proportions of quick assets to quick liabilities—the equilibrium concept covers a multitude of factors which I shall not try to analyze here. Very fundamental in this connection is the generalization of J. B. Say and Cairnes regarding general overproduction and particular overproduction to which I have referred above. But the coming of a crisis can be sensed most surely by those who have the equilibrium picture in their minds, and who study current business data and statistical changes with this equilibrium picture in mind. And confidence regarding the revival after a crisis is most justifiable when the statistical data available indicate that balance is being restored.

Sometimes very consciously, often unconsciously, bankers in their study of the business situation make use of this equilibrium concept. The banker deals with all the other businesses. The local banker deals with all the businesses of his community. The banker in the central money market deals with businesses and banks all over the country, and for that matter throughout the world. He is constantly raising the question of whether this line is being overdeveloped and this line developing inadequately. He is interested in a well-balanced situation. He trusts it. A one-sided prosperity on the other hand, where certain businesses are

making great profits and others are having difficulties or incurring losses, fills him with concern. He wishes his own portfolio to be well-balanced and diversified. Static economic theory he usually does not know by name, but the generalizations of static economic theory he grasps readily. He is interested in balance and proportion and equilibrium.

Many of the best students of business forecasting have recognized very frankly their debt to general economic theory and their dependence upon it. Mr. Ray Vance, for example, in a recent book states very explicitly that the business forecaster must be an economist first and a statistician second, that statistical investigations must be guided by economic theory.

Professor Wesley C. Mitchell, whose contributions to business forecasting are greater than those of any other single man, gives evidence in almost every part of his work of his knowledge of and dependence upon economic theory, static economic theory, and the equilibrium notion. His *Business Cycles* could not have been written by a man who was not deeply learned in this body of doctrine. He does not find use for the expression "the static state." [1] But his interpretation of the business cycle constantly employs equilibrium notions. The period of prosperity generates abnormalities, stresses and strains. Costs get out of proper relations to prices. There are great inequalities in the rise of costs and prices. Various other abnormalities occur, such as shortages

[1] Professor Mitchell says (*Business Cycles,* page 86):

"One who turns from reading economic theory to reading business history is forcibly impressed by the artificiality of all assumptions of a 'static' or even a 'normal' condition in economic affairs. For, despite all efforts to give technical meanings to these ambiguous terms, they suggest the idea of an unchanging order, or of an order which economic principles are always tending to re-establish after every aberration. But a review of business annals never discloses the existence of a 'static' or a 'normal' state in either of these senses. On the contrary, in the real world of business, affairs are always undergoing a cumulative change, always passing through some phase of a business cycle into some other phase. Prosperity is relapsing into depression, or becoming more intense, or breeding a crisis; a crisis is degenerating into a panic, or subsiding into depression; depression is becoming deeper, or merging into a revival of prosperity. In fact, if not in theory, a state of change in business conditions is the only 'normal' state."

I agree with this paragraph, but I do not believe that it touches the heart of the matter. The static concept in economics should not imply either that business does not change or that business in its periodical changes recurs to an identical situation. The static concept is merely a methodological device for isolating and analyzing a highly important body of economic tendencies, an understanding of which is necessary for any realistic study of economic processes.

of particular kinds of raw materials, and excessive industrial equipment in some lines, with inadequate equipment in others. A crisis comes and corrects these abnormalities, restoring equilibrium—roughly and approximately. Throughout his analysis of the business cycle it is clear that he is judging the phenomena that he describes in terms of the static norms.

It is, therefore, an occasion for comment that in his presidential address before the American Economic Association in December of 1924, he should have taken occasion to scrap the "static state" and the general body of economic theory to which the term, statics, properly applies. That many elements in the older economics may be discarded I grant cheerfully, and I would go all the way with Professor Mitchell in dropping studies of "utilities and disutilities . . . in the individual economy." We need modern social psychology rather than the individualistic psychology of David Hume and Bentham as the basis of present-day economic theory. But a modern theory of value resting on present-day sociology and psychology, so far from throwing out of court the great generalizations based on the notions of supply and demand, cost of production, the laws of wages, interest, rent, and profits, the capitalization theory, the laws of marginal equilibrium among the factors of production, and of the factors of production in different industries, rather strengthens them by giving them a solid foundation. The static-dynamic contrast seems to me particularly to gain rather than to lose by being reformulated in terms of a social theory of value.[1]

Professor Mitchell says: "In recent years many members of our Association have come to fear that economics may disintegrate into a number of specialties. This danger they combat by insisting that every young economist must receive a thorough grounding in theory. The remedy seems inefficient, because the qualitative theory, in which we are commonly grounded, plays so small a rôle in our work as specialists in public finance and banking, in accountancy and transportation, in economic history and insurance, in business cycles, marketing, and labor problems."

I wish to enter a *caveat*. The student of public finance who does not understand the static theory of the incidence of taxation

[1] I venture to refer here to the chapter on "The Reconcilation of Statics and Dynamics" in my *Value of Money*.

cannot go far. Nowhere is a grasp of general economic theory more necessary than in the study of money and banking. The theory of value and prices is essential in the study of marketing. The theory of wages is necessary to the study of labor problems. The backbone of the study of rate-making—an essential part of the subject of transportation—is to be found in the static doctrine of joint costs, which is not to be understood apart from the general theory of value and price. The whole course of what has gone before is concerned with showing how vital the general body of economic theory is to the study of the business cycle. Teachers of economics are emphatically unfair to "the young man" if they do not give him "a thorough grounding in theory." The economist's peculiar service in the study of business problems consists in his ability to see the whole business situation and the interrelations among businesses, where the well-informed man in a particular trade sees only a part. It is the purpose of general theory to give the student this comprehensive point of view.

THE ENTREPRENEUR AND THE SUPPLY OF CAPITAL

George E. Barnett

In the development of the theory of profits in English and American economics, attention has been directed chiefly to the function of the entrepreneur; that is, to the nature of the services rendered. The present paper is devoted to the task of bringing together such evidence as is available to indicate that the evolution in the theory of profits has not been due in reality so much to the better appreciation of the nature of entrepreneurial function as to changes in the dominant forms of capitalism and in the mechanism for supplying capital to industry. The effect of these changes, it will be contended, has been to produce shifts in that factor of production to which profits attach themselves. A real change in distribution has been the underlying factor in much of the controversy as to function.

If we begin, as most present-day economists do, with Professor Clark's definition of the undertaker as the owner of the product—profits are the remains of the whole receipts of the undertaking over and above the cost of the land, labor, including labor of management, and capital used. Profits are made up of various economic categories into which it is not necessary here to inquire more particularly, especially since they are of heterogeneous kind and have never been adequately analyzed. The argument to be hereafter set forth is to the effect that under certain conditions this remainder as a totality falls to capital, under other conditions to labor management and under still other conditions to "active" or risk-taking capital. Whether it falls to one or the other depends chiefly on the kind and amount of capital required and the capital market prevailing at a given time or in a given industry. The present functional theories of profits tend to obscure the fact of these variations and to bring the theory of profits into a uniformity which is not in accord with the existing economic world.

I

In economic doctrine from Smith to Mill, it was assumed that the capitalist was the owner of the product and that all over the cost of land and labor accrued to him as a capitalist. Profits varied, according to Smith, with the extra labor and unusual hazard involved in the particular commitment. The surplus over the cost of land and labor and the normal rate of profits was conceived as a recompense for the risk and extra labor of management in a particular trade. And always it was the capitalist who took these risks and who paid for the extra labor of management. All capitalists were conceived as profit-takers. Profit was thus a composite return in which the chief element was capital. Such other elements as made up profit were supposed to come to the capitalist as a form of addition naturally accruing. There are here and there references to loan interest as distinguished from profits, but this distinction assumed no great importance.

This conception of the relation of profits to capital was a natural and correct one in a country in which banking was as yet only slightly developed, the corporate form of business slightly used; and in which the typical form of investment was agriculture. Unfortunately, we know little of the capitalism of the early nineteenth century, but such glimpses as we get lead to the opinion that an undertaker had to rely almost exclusively on his own resources or take in a partner with capital.[1] If a man was to get profits, he must have capital and the amount of profits was proportional to capital.

The conception of profits as a composite of interest, payment for risk, earnings of ordinary labor in the employment of capital, and fortuitous gain remained almost unchanged until the late eighties. Perhaps the most important divergence from this conception among the masters of the science[2] was that of Senior,

[1] The "sleeping" partnership was not indigenous to the English common law. The earlier development in French economics of the idea of the undertaker as a receiver of the earnings of management may have been due to the wide use of the *commenda* and similar legal forms of enterprise, under which the manager was able to obtain capital.

[2] My colleague, Professor J. H. Hollander, has called my attention to an early attempt to introduce the French concept of the entrepreneur into English economic theory by George Ramsay in *An Essay on the Distribution of Wealth,* Edinburgh, 1836. Ramsay, however, held the Ricardian view as to the causes of gross profits, and therefore was able to set aside only a small field for the entrepreneur. The book made no impression on the current of economic thought.

who raised the question whether the term "profit" should not be applied to the combination of wages of management and interest, leaving the "mere labor" of employing capital to be remunerated by wages. "This would make it necessary to subdivide capitalists into two classes, the inactive and the active: the first receiving mere interest, the second obtaining profit." [1] The chief illustration which he used was that of a bill broker making £4,000 a year net by employing £400,000 of other people's money. He decides on the whole that "the inconveniences occasioned by a departure from an established nomenclature and an established classification are so great that we do not think that they will be compensated by the nearer approach to precision." The conception of the identity of capitalist and undertaker persisted.[2]

II

By the latter part of the nineteenth century, banking and other credit facilities had increased so greatly that a large part of the capital used in industry and commerce was borrowed capital. From 1851 to 1872, according to the best available estimates, the loans and discounts of English banks doubled. A similar expansion occurred in the United States. Freedom of incorporation had been obtained in both countries. The scale on which industry and commerce was carried on was as yet relatively small. The proportion of fixed capital to circulating capital was in most industries low. Under these conditions, the possessor of business ability was able to secure funds for the conduct of business on the basis of managerial ability.[3]

[1] Senior, N. W., *Political Economy*, 1854, p. 133. It is interesting to note that the term "active" capitalist occurs twice in economic theory. Senior, as indicated above, uses it in the sense of a capitalist who receives more than ordinary interest and wages by reason of his skill and intelligence. Professor F. A. Fetter defines active capitalists as "risk takers getting non-contractual capital-incomes, whom we call enterprisers" (Fetter, F. A., *Economic Principles*, Vol. I, p. 319).

[2] J. S. Mill says, "The control of the operations of industry usually belongs to the person who supplies the whole or the greatest part of the funds by which they are carried on. . . ." (*Principles*, 5th ed., 1868, p. 496.)

[3] As early as 1870 in the introductory chapter of *Lombard Street*, Bagehot said, "English trade is carried on upon borrowed capital to an extent of which few foreigners have an idea, and none of our ancestors could have conceived. In every district small traders have arisen who discount their bills largely, and with the capital so borrowed harass and press upon the old capitalist. . . . In modern English business, owing to the certainty of obtaining loans on discount of bills or otherwise at a moderate rate of interest, there is steady bounty on trading with borrowed capital, and a constant discouragement to confine yourself solely or mainly to your own capital."

A new theory of profits—the labor management theory—was the outcome. This theory was based not so much on a historical analysis of the changes in the capital market as on observation of existing facts. But there are some passages in Walker and Marshall which indicate that they were not unconscious of these changes and of their significance. Walker says:

> English and American economists, in general, have chosen to regard the capitalist as the employer of labor, that is, as employing labor merely because of the possession of capital and to the extent only to which he possesses capital. . . . In the later stages of industrial development the possession of capital no longer constitutes the sole or even the main qualification for employing labor. . . . So important and difficult are these duties, so rare are the abilities they demand, that he who can discharge these will generally find the capital required. If he be the man to conduct business, food, tools, and materials will not, under our modern system of credit, long be wanting to him. . . . It is no longer true that a man becomes the employer of labor because he is a capitalist. Men command capital because they have the qualifications to employ labor. To men so endowed, capital and labor alike resort. . . . By this is not meant that the employer is not in any case or to any extent a capitalist, but that he is not an employer to the extent only to which he is a capitalist nor is he an employer at all because he is a capitalist.[1]

It is interesting to observe the gradual development of Marshall's view of profits. In the *Economics of Industry* (1886 ed.) a very large part of the discussion of earnings of management deals with the relative advantages of trading on borrowed capital and on owned capital. He came to the conclusion that "men trading with borrowed capital seem likely to displace to a great extent those trading with their own." This view was based on the opinion that the man who owns little capital will be content with lower earnings of management.[2] In the *Principles*, however, the emphasis is laid primarily on ability to obtain capital as the necessary condition for business power to receive profits.

> Thus, in spite of vicissitudes, the able business man generally finds that in the long run the capital at his command grows in proportion to his ability.[3]
>
> Meanwhile . . . he who with small ability is in command of a large capital speedily loses it. . . . These two sets of forces, the one increasing the capital at the command of able men and the other destroying the capital that is in the hands of weaker men bring about

[1] Walker, F. A., *Political Economy*, 3rd ed., pp. 233-234.
[2] P. 136.
[3] 3rd edition, p. 390.

the result that there is a far more close correspondence between the ability of business men and the size of the businesses which they own than at first sight would appear probable.[1]

III

Writing in 1893, Professor Cannan regarded the management theory of profits as firmly established. He said:

> The displacement of capital from the triad of productive requisites and its relegation to the same rank as organisation, knowledge, mental and muscular powers would not, perhaps, have been of much importance if it had not been represented as the most active element in the triad. As it is the change is immense. . . . The power of managing industry is attributed not to the mute and inanimate capital, nor even to the owners of capital, but to a particular class of workers—the entrepreneurs—and it is clearly seen that even they can only direct industry into particular channels by virtue of their intelligent anticipation of the orders of the consumers, whose demands they have to satisfy on pain of bankruptcy.[2]

Already, however, Professor John B. Clark, in an article published first in the *Political Science Quarterly* and later in *The Modern Distributive Process*, had formulated the now dominant views that the earnings of management are reducible to wages.

> Pure profit [he says] is the return of simple ownership. It is free from all admixture of wages and interest. It accrues to him who simply extends the ægis of his civil rights over the elements of a product and then withdraws it in order that the product may pass into other hands. The entrepreneur or assumer is he who takes upon himself the responsibility of ownership.[3]

The subordination of management was, however, only a denial of the correctness of the business management theory. The next step naturally was the assignment of profits to a new factor. Since that time and, even before, the theory of profits has taken increasingly the form of the risk theory of Hawley or the "active capitalist" of Professor Fetter. All of this involves the recognition of the fact that under modern economic organization profits accrue over the larger part of the field not to business management, but to the capital which owns the product.

The great changes in industrial organization and capital markets which forced the business manager to relinquish ownership of the product over a great part of the field of business may

[1] *Ibid.*, p. 391.
[2] Cannan, E., *Theories of Production and Distribution*, p. 398.
[3] Clark and Giddings, *The Modern Distributive Process*, pp. 38-39.

be briefly enumerated. In the first place, the great size of the business unit made it impossible for individual business managers or groups of managers to raise the necessary capital. Secondly and even more important, the form of the capital required—fixed in place of circulating—made it impossible for the business manager to acquire control by the means of commercial bank loans. Such loans, since they were made largely on the basis of business ability, could not be used in a large way as a means of acquiring the means of production when these had a length of life frequently transcending that of the individual. A third factor in reducing business ability to a contractual position has been the enormous growth of monopoly and quasi-monopoly profits. These profits in many concerns are both large and durable. Of this momentous change in distribution the corporate form of organization is the expression.[1]

It is interesting to observe the place which this great transformation played in the development of the new theory of profits. As far as can be ascertained it was never assigned its true rôle as the actual moving force by the authors of the newer theories of profits. Again, it was observation and not the study of changing conditions which dominated the theorizing. Thus the corporation figures frequently, but merely as an illustration of the subordination of managerial ability. Thus Professor Clark says:

> That the capitalist, manager and the owner of the product may at times be one and the same person does not affect the analysis. The three functions are distinct and the rewards attaching to them are equally so. The growth of corporations tends in a practical way to separate these functions. Capitalists are here a body of stockholders, bondholders and business creditors, managers are a body of salaried officials; while entrepreneurs, in the limited sense of the term, are the stockholders. Pure profit resides in the portion of the dividends that is in excess of current interest on the paid-up capital.[2]

In most of the modern text-books the same illustrative use is made of the corporation.

[1] It is to be noted that it is not the mere corporate form which is important in this connection. Many corporations are nothing more than convenient legal forms for carrying on business. In many of these, business ability still holds ownership and takes profits. Indeed, the corporation may be made an important instrument in securing such ownership by the business manager. But in the greatest of modern corporations, business ability is hired. Many of the modern problems of corporations—banker's control, non-voting stock, the wrongs of minority stockholders, etc.—are the accompaniments of this transition.

[2] *Ibid.*, p. 39.

The great changes in industry which embody themselves in the shift from the individual or partnership entrepreneur to the corporate form have been gradual. The adherents of the business management theory had to face the facts, since already when Walker and Marshall were formulating the management theory of profits the corporate form was growing in importance. Walker regarded the corporation, apparently, as a development of minor importance and explained the profits of stockholders as sheer exploitation of business ability. In an article in the *Quarterly Journal of Economics* entitled "The Doctrine of Rent and the Residual Claimant Theory of Wages," he said:

> Disguised profits also enter into the dividends of many companies or corporations which have had the good fortune, good sense and good feeling to retain, as managers, men of the highest business ability, born captains of industry who yet, by considerate treatment and high salaries (the force of habit and perhaps pride in the work concurring) are induced to remain long after they have reached the pitch of reputation which would give them command of the situation if they chose to set up as manufacturers for themselves.[1]

Marshall also was aware of the fact that in the corporation there existed a formal allocation of profits inconsistent with its inclusion in "earnings of management." In them, he recognized a new distribution of the various parts of the work of management, but he entertained grave doubts as to the possibilities of their wide extension.[2] It was apparently only his skepticism as to the future growth of the corporate form of organization which enabled him to regard the business management theory as an adequate explanation of the facts.

IV

The history of the theory of profits, if the foregoing is correct, has been determined not by increasing accuracy of economic analysis, but by great industrial and credit changes which from time to time have shifted the ownership of the product. The really important historical question has been: Under a given set of conditions to whom do profits come, not what does the entrepreneur do to get them. When conditions were such that business ability was usually able to secure the profits, a theory that profits are the reward of business ability came into existence; when

[1] Dewey's ed. of *Walker's Discussions*, Vol. 1, p. 427.
[2] *Principles*, p. 382.

again ownership fell to "active" capital, theories of risk-bearing sprang into existence.

As a matter of fact neither form of theory is exclusively applicable, even as a statement of the attachment of profits. In those industries where large capital, fixed capital and valuable good-will are the rule, the risk theory fits the facts better. But in other kinds of enterprise where small capital, circulating capital and relatively unimportant good-will hold the field, the theory of business management accords better with the facts. Moreover, it must be admitted that in most cases some admixture of the two theories is better than either alone.

THE MALTHUSIAD: FANTASIA ECONOMICA

James Bonar

If the tables have been turned on Adam Smith since his first edition in 1776, what of Malthus since 1798? He might seem less vulnerable as presenting a smaller surface to attack, a single contention instead of a system of doctrines,—more vulnerable on the other hand as putting all his eggs into one basket. It may prove that what is obsolete in him is just the eggs in the other baskets, which he could not refrain from filling, indeed, as a professor, was bound to fill according to his faculties.

Suppose him to appear in a dream to some Young Economist of our century, demanding "Am I obsolete or am I not?"

The other might answer:

"Mr. Malthus, if we believe your earlier opponents and some of your later, you were obsolete from the first, or at least as soon as Mr. Godwin found that you were after all worth powder and shot, and wrote his *Enquiry concerning Population,* 1820."

The Shade might reply:

"We there as you here are bound to speak nothing but good of those who have left the world, and, though at one time I held Godwin an indifferent amateur in statistical study, I allow that he gave me a hint from which I profited. It helped me to rid myself of early raw exaggerations; and by the time he and Booth and Coleridge, to say nothing of Hazlitt, had said their say, I had already gone beyond them and escaped their hands."

Y. E.: "Is it true that you made population increase faster than food?"

Shade: "Even in my first fine careless rapture I never made it work miracles. I said it was always tending to increase beyond the food, and trying hard to do it, and it was repressed and kept down by vice and misery, or the fear of misery. In my second edition (1803) I allowed for a third power, moral restraint,

which saves the situation, and, whatever my critics may say, saves it without vice or misery."

Y. E.: "Mr. Malthus, if you had said all this at first, would your book have made such a noise in the world? You get the credit of having roused civilized humanity from its visions of an Earthly Paradise by showing the existence of something in human nature fatal to all paradises. Writers before you had the idea of it in their *brain,* but you got it into other people's *bones.*[1] You would hardly have done so, sir, if you had made all your corrections in the proofs of your first essay; you wisely kept them for the second."

SHADE: "My exaggeration was not intentional. I honestly did not see in 1798 what I saw in 1803. You speak of corrections. The introduction of moral restraint was the one important correction. Corrections and additions are bound to be legion in every scientific inquiry. We get more and more of the truth as we go on, but all grows from the same root; there is no recantation of first principles. I am prepared to hear from you that the process had gone on in your day as in mine."

Y. E.: "I shall try to follow your well-known example, sir, and be polite even in telling of things disagreeable. The process as you describe it assuredly went on within your own book in the successive editions of it; and I take for granted that you know all about your critics till the 29th of December, 1834, when you left us. If you had been Professor at Cambridge instead of Haileybury for thirty years, lecturing not to cadets of the East India Company but to future professors, you might have founded something like a school. As it was, you reached the highly trained and learned and scientific men only through your books and their letters and occasional visits to you. Other economists, like Ricardo, got fruitful hints from you on Rent and less lucky ones on Wages and Value. You lived to see the Philosophical Radicals put you into their creed and calendar. You lived to see your maxims embodied for good or ill in a New Poor Law, 1834. You helped statisticians to draw together (in that same year) into a Statistical Society, and you will be glad to know that the said Society still exists and occasionally studies Births, Marriages and Deaths just as you would have desired. You had

[1] Stokes quoted by A. Schuster, *Nature,* Feb., 1925, p. 305, on the discovery of the Röntgen rays.

previously (1833) joined with all the talents to found the British Association for the Advancement of Science, which still remembers you in its Biological and Economic sections. You were no ardent politician, but you must have triumphed with the rest of the Whigs when the Reform Bill passed in 1832. You will hardly care to know that in your own country reform has gone farther since then, and we are a democracy in everything but the name."

SHADE: "There was certainly comfort in these last years. But *surgit amari aliquid;* there were some signs of the times that made me uncomfortable. Though it hurts my own feelings I must mention that my checks on population were often redefined for me by people who used my name and authority unadvisedly, including some of the politicians to whom you have referred. As you know, I do not love to dwell on this subject; my check was always moral restraint, and deferment of marriage; with them it is something different."

Y. E.: "Your own successor, sir, Richard Jones, declared that the adjective should be dropped or altered into 'voluntary.' "

SHADE: "I was always a little afraid of what would happen if it were dropped, as indeed it was by my friends Place and James Mill and his precocious son. James Mill, like me, was in John Company's service. You will admit that, like him, I fought valiantly for the company and my college, not without frank criticism. I may venture to say, I was a good friend to my young men in that same college, and though boisterous they were rarely bad, and I think we respected one another."

Y. E.: "Everybody respected you, sir. But the college is gone or rather it is transformed into a public school, and a very good one. It produced some famous men, but after certain disturbances in India and changes of policy and plans of selection at home it was doomed to go. As a matter of fact it went before the Company, 1855, largely because of a Report from your friend and champion Macaulay. Professor Monier Williams [1] speaks from tradition of the delightful evening parties your wife gave to the college, and of your own great amiability and charm of character. You need have no fear on that head. Miss Martineau, Miss Edgeworth, Mackintosh, Sydney Smith, all sang your praises. The banter of the last is not to be mistaken for dislike."

[1] *Old Haileybury* (Constable, 1894), pp. 198-9.

SHADE: "But to the end I was out of doors an ogre, an enemy of marriage and of the multitude, more especially of the labouring poor."

Y. E.: "That was because the full consequences of your central doctrine were not at first seen. I mean the supreme need of watching, supporting, and raising the general standard of living, so that what was done fairly well in your time by the middle and upper classes might be done by all classes, labouring poor included. It was left to that 'precocious lad' of whom you have just spoken to say plainly that you did not close the door of progress; you were the first to open it. Even socialists (and they are of very different quality from those of your day) are coming round to this view of the matter, without otherwise agreeing with you altogether."

SHADE: "You have made me remember the happy days I passed at Haileybury when 'the ogre' lived the placid life of a man of letters. *Que voulez-vous de moi?*"

Y. E.: "*Votre bénédiction.* I am narrating, not criticizing, and if you will forgive my youthful presumption I am going to tell in my own way what has happened to your cause after 1834. Prepare to be bewildered like any other Rip Van Winkle, whether in the body or out of it (for both happens). Hear the best news first. You have had a real victory, though you have founded no school, and your followers are broken up into groups that would puzzle you and sometimes offend. I shall not dwell on the class of whom even your amiability speaks with impatience. It is far from extinct; it may be considered a power, indirectly a political power; and some of your own admirers condone it as presenting the less dreadful of two ugly alternatives. They claim to have obeyed you best by disobeying you. With or without their assistance there has been, especially in your own country, a remarkable fall in the birth rate and death rate, with no such fall in marriages. I turn rather to your influence on scientific men. You have led Darwin and Wallace to give us a theory of the origin of species by natural selection and the struggle for existence. The philosopher, Herbert Spencer, has supported them in the main; and in general outline the theory has influenced all sorts and conditions of thoughtful men for the last sixty years. Like your own theory, it has needed modifications and is getting them. Out of it has grown a class of your followers who call

themselves Eugenists, faintly foreshadowed by you in your quotation from the *Tatler* about Maud the Milkmaid. They would perpetuate good strains of population by inheritance. The quality of the population rightly seems to them more important than the quantity. You were a Utilitarian, Sir, but I seem to remember passages in your Essay showing that Greatest Happiness need not mean greatest numbers, but might be secured by smaller numbers of higher quality. It is open to question whether the great men or the great masses should matter most to a lover of his country."

SHADE: "Strange that a small man like me (small in mental stature) should have got a hearing at all, still less should have left his mark on great men and movements. I feel, *si parva licet componere magnis*, as Shakespere's Henry VIII must have felt when told of the Great Elizabeth to come after him."

Y. E.: "Measured by influence, Sir, you are not a small man; and like Darwin you have added an adjective to the English language. You are not in Westminster Abbey, for no mere economists are there; but pilgrims have gone to Bath Abbey for your sake."

SHADE: "You speak of influence. Apart from the *Essay*, I should have thought to survive by a subdued influence on my dear Ricardo and his followers, not by any influence on science at large, still less by public fame. Ricardo was a very brother, and we might have agreed altogether if we had lived long enough together. As it was, he and his followed what I considered devious ways."

Y. E.: "Yes, I remember your solemn indictment of them in the *Quarterly Review*, 1824; and the course of time has turned the tables on that 'New Political Economy.' A Classical School, of your type rather than theirs, might have lasted longer than theirs, for theirs cannot be said to have lasted very long."

SHADE: "I think you will find my tables not so easy to turn as theirs. The observers of my rules are on the whole more than the breakers thereof. My warnings against partial remedies for excessive population are probably standing; emigration, for example, and a potato diet did not go to the root of the matter."

Y. E.: "The last had a tragic exposure in an Irish Famine ten years after your death. But the relation of the Classical School to labour was in your system very much what it had been in the

other systems, and it is just there that the change is greatest, and you have fared no better than Ricardo and the rest. You and he and all of them fell down."

SHADE: "I was an early supporter of Factory Acts. Put that to my credit."

Y. E.: "But a half-hearted repealer of the Corn Laws, if you could be called a repealer at all. Your concessions did credit to your heart, but they weakened your reasoning; and you did not withdraw them, like your precocious young friend, when you found them abused. But be comforted. Your other writings, books, articles, and letters, tell us much about you and we value them accordingly; but we count them all minor alongside of the *Essay*. You spoke of a gradual emendation. Travellers have corrected many of your illustrations from savage life, and our historians have mended your details of history. There was little folklore or archæology in your day; and medical skill is much better now. In fact, Man on the Earth is much better known to us than you could know him. Our scientific men, too, Udny Yule, Pearl, Virgilii, have even amended your Ratios, without absolute agreement, it is true, about the substitute."

SHADE: "I was quite prepared for that. My main point was a disproportion seen as soon as mentioned but hard to reduce to exact figures. In the concrete, the population of a country is always relative to its conditions, and it is seldom safe to make prophecies."

Y. E.: "You would applaud a shrewd remark made recently by a member of your Statistical Society, that in order to forecast population we must first forecast trade and production. Our age is 'grown so picked' that, instead of discussing 'room and food' like you, it discusses the *optimum,* said to be a botanical term here used for the number of working inhabitants just enough to produce sufficiency under a given standard of living. Relativity is thus forced upon our discussions, for the standard may vary with groups within the nation."

SHADE: "I should have revelled in such topics. One soweth and another reapeth. I am glad something of my work remains, though its new shape makes it hard for me to recognize it. A man's task is given to him from day to day, and he knows not which part of it will prosper. I may have wasted time over minor matters such as the question of a standard of value."

Y. E.: "Be not perturbed, Mr. Malthus; your main service is so great that the minor matters will not be remembered against you, even if not wholly in your favour. I said you might be measured by the results of your work; I add, with juvenile audacity, that a man's greatness may also be measured by the mistakes he has lived down. Forgive both blame and praise. In the work of every economist, even in the great Adam and Ricardo, there is a part that is obsolete. The weight is too heavy to be lifted unless by two or three together. We youths, whether precocious or only studious, render willing obeisance to those who, like yourself, have lifted more than their share of the weight. You will be glad to hear from me that we have still such leaders as you, not only in the British Isles but Over the Seas."

Like Achilles in the Odyssey, the Shade retired to his meadow of asphodel with the long strides of a man not altogether dissatisfied.

THE STATIC STATE AND THE TECHNOLOGY OF ECONOMIC REFORM

Thomas Nixon Carver

One of Professor Clark's special contributions to economic theory is his clarification of the concept of a static condition. Instead of being a mere useless abstraction this concept turns out to be one of the most productive ideas ever introduced into economic discussion. It is, as he insists, a necessary preliminary to any proper understanding of a dynamic condition and the laws which govern it. In fact, every dynamic movement is either a disturbance of a static condition, or a series of movements by which the static condition is reasserting itself, or rather, by which a new static condition is being established after the disturbance. Thus understood, the concept of the static state is a guiding principle comparable in importance with the law of diminishing returns, or the marginal utility theory of value. It furnishes the key to all constructive programs of permanent economic improvement,—particularly for the improvement of the distribution of wealth.

A static condition is an equilibrium of forces. By disturbing the equilibrium intelligently, the forces at work can be made to produce automatically, so far as further effort is concerned, many desirable results. This is the method of every great practical achievement in whatever field, from engineering to diplomacy. Any other method is likely to create difficulties which multiply the necessary effort in geometric proportion.

The biologist's concept of the balance of nature is a concept of a static condition. By intelligently introducing a new factor into the balance the biologist can so disturb it as to produce, with slight effort, results that would require armies to accomplish by more direct methods. Insect pests such as the chinch bug and the gypsy moth, and other pests such as the English sparrow, have been effectively controlled in this way. Rats in the sugar

plantations of Cuba were effectively controlled with slight effort by introducing the Egyptian mongoose. A moderate expenditure of effort on a drainage canal may change the drainage system of a continent, transferring billions of tons of water, without further effort, from one ocean to another. The entire course of human history may likewise be changed by a shrewd diplomat who knows how to disturb the balance of power in the right way, and at the right time and place. However, it is not necessary to multiply illustrations, though thousands are available.[1]

Professor Marshall made a less general but more pointed use of the concept of a static state in his elaboration of the concept of an equilibrium of supply and demand, with the concept of an equilibrium price both as a result and a cause. The equilibrium price may be regarded as a cause in so far as it is a means of preserving the equilibrium of supply and demand, or in so far as the equilibrium may be disturbed by artificially changing the price. But the equilibrium, when thus disturbed, has a way of reasserting itself or, if it is to be continually disturbed, of requiring increasing effort, and the necessary effort increases in geometric ratio. If, for example, by some government decree or trade union rule, the price of a given commodity,—say a given kind of labor,—is raised above the equilibrium level (that is, above the level which will induce just as many men to seek employment as employers are willing to hire), the equilibrium is, of course, disturbed. But it tends to reassert itself, first, by tending to reduce the number of men whom employers are willing or able to hire, and, at the same time, tending to increase the number of laborers seeking employment in that particular kind of work. One of the first results of this disturbed equilibrium is unemployment,—more laborers seeking work in this kind of employment than can find it. This mass of unemployed laborers creates a long train of consequences which require increasingly drastic action on the part of the government or the trade union to overcome. Rather than remain unemployed, some of them

[1] A somewhat diverting but impractical illustration could be made out of Darwin's famous correlation between the number of cats and the price of clover seed. If the number of cats could be decreased in any one of several easy ways, say by starting a fad for fox terriers, or by marrying off spinsters, the resulting increase of field mice would thin out bumble bees and this would prevent the spread of pollen and reduce the supply of clover seed, which in turn would raise its price. Thus one problem in agricultural price fixing would be solved without congressional action.

will offer to work for less than the artificially established wage. If they are permitted to do so, they will break the wage scale. If prevented, still worse consequences follow.

The mass of unemployed labor creates, for example, what is sometimes called an industrial reserve army, that is, a surplus of unemployed labor which can be employed only in times of extraordinary business activity, or during a business boom. This labor reserve is one of the things that make a business boom possible. Its absence would make a business boom impossible (more of this later). But a business boom is necessarily followed by a period of inaction, and this means an acute condition of unemployment with an acute desire to secure employment on any terms by considerable numbers of men. Only the most drastic procedure can then preserve the artificial wage scale.

If there were no industrial reserve army a general business boom would scarcely be possible. It is made possible by the fact that every industry can expand indefinitely without greatly increased cost. So long as each industry can buy increasing quantities of raw materials without raising the price, get increasing quantities of working capital without raising the rate of interest, and increasing quantities of labor without raising wages, there is no effective drag to prevent a business boom. We have already had enough experience to show that a rising rate of interest operates as a drag, and our federal reserve system is making good use of this instrument,—a rather ineffective one, it is true, but the best one that is available. It is ineffective because the capital cost is not the principal cost in business expansion. A much more effective drag would operate if wages promptly advanced in a time of potential boom. Wages would promptly advance if there were no industrial reserve army. If that were the situation, then when each and every industry was trying to expand, they would merely be trying to hire laborers away from one another, and this would put such an effective drag on undue expansion as to be prohibitive. But where there is a large industrial reserve army, each and every industry can expand without such advance in wage rates by merely drawing on the labor reserve. Unless other new forms of increasing cost can be found to operate as repressants in time of expansion, these alternating periods of employment and unemployment will exist to the general disadvantage of labor. In short, the attempt to raise

wages directly by such an artificial decree or rule brings such a number of evils in its train as to require greater and greater effort on the part of laborers and of governments for their elimination.

These evils are very noticeable in those old countries that are relying upon such artificial measures as union rules and government decrees for raising wages. They are obscured in countries, such as the United States, where other and more constructive measures are taken first to change the equilibrium, and then to wait for economic forces to bring about higher wage levels semi-automatically. These constructive measures are of such permanent importance to the student of economics, and they are so difficult for the non-theoretical mind to understand, as to require some rather elaborate theoretical analysis and elucidation.

If, instead of trying to raise wages directly and artificially, the equilibrium wage is frankly regarded as a result rather than a cause of the equilibrium of demand and supply, and attention is turned to the general causal factors in the equilibrium, a different policy will be dictated by the logic of the situation. If some of these factors can be changed so as to disturb the equilibrium in the right direction, then, without further effort, wages automatically rise, and such a rise in wages does not bring in its train such a list of evils as invariably follow from any attempt to raise wages directly.

It is, however, possible that some of the difficulties which follow the attempt to raise wages directly may either cure themselves or set in motion new forces that will effect a cure. For example, if wages in a given occupation or group of occupations are forced appreciably above the equilibrium level, it will undoubtedly create unemployment. This unemployment, however, may cure itself in one of several ways. First, the surplus laborers may emigrate either voluntarily or involuntarily through deportation. If they emigrate in sufficient numbers, the new wage rate, which was at first definitely above the equilibrium level, will soon become the true equilibrium wage. That is, the thinning out of laborers through emigration or wholesale deportation may proceed until the new wage level is only sufficient to induce as many to offer themselves for hire as employers are willing to hire. It is important to note, however, that it is a real cure only on condition that the new wage level shall actually become an equilibrium level.

Again, such an artificial advance in a country to which immigrants have been coming may, under certain special conditions, be made a means of retarding rather than of accelerating immigration. If the artificial wage scale creates unemployment, and immigrants are discouraged from coming until they actually have jobs, such a measure would practically stop immigration.

On this general ground, a drastic minimum wage law, rigidly enforced, could consistently be advocated. If such a law were rigidly enforced, and no one was given a special dispensation to work for less than the legal minimum, then every laborer who could not get the minimum wage would automatically become a pauper. If the resulting large number of paupers of breeding age were segregated and prevented from multiplying, it would tend to thin out that class of laborers, at least by the second generation. In this way, not only would the legal minimum wage tend to become the equilibrium wage, but such a law would probably work eugenically besides.[1]

If the problem of the unemployed can be dealt with in any of these ways, the higher wages received by those who are fortunate enough to find employment may also, in many cases at least, act as an educator to raise the standard of living and thus keep down the birth rate among them. In other cases, especially in the cases of those of lowest intelligence, unless they are automatically forced into the pauper class, the higher wages may merely result in earlier marriages and larger families. If sufficient numbers should react in this way, the numbers of laborers would increase, and the country with a minimum wage law would be perpetually burdened with a problem of artifically created pauperism.

In spite of all these qualifications, it is clear that these direct methods of raising wages are permanently effective only on condition that some of the original factors in determining the equilibrium wage are so changed as to produce a new equilibrium of forces which will make the legally decreed wage the actual equilibrium wage. It is well to remember that if some of these original factors could be intelligently changed, a new equilibrium and a new equilibrium wage would result anyway, semi-automatically, and without direct legislative wage fixing.

[1] The writer has, on these grounds, for many years persistently advocated minimum wage laws.

In order to deal effectively with any static state or any economic equilibrium, it is necessary to know the factors and forces that are in the balance. To be somewhat more specific if it is desired to change an equilibrium wage to the advantage of laborers, in a given occupation, it is necessary to know what factors are at work inducing laborers to offer themselves for hire in that occupation, or what factors are at work inducing employers to offer to hire laborers. When this is once understood in some detail, we may find some way of reducing the number who will offer themselves for hire at the old wage, or increasing the number which employers would be willing to hire. Either way would change the equilibrium, and require a higher wage to bring about a balance between the number wanting employment and the number wanted by employers.

If, for example, it is found that one factor in the equilibrium of the demand for and supply of labor of a given kind is free immigration from a low wage country, such as Mexico, China, or India, so that a very low wage is sufficient to induce as many laborers to offer themselves in this country as employers are able or willing to hire, the effective method of meeting that situation is to shut off these supplies of cheap labor. When this is done a new equilibrium wage will establish itself without further effort. In other words, it will then require a higher wage than formerly to induce as many laborers to offer themselves as employers are willing to hire.

If, on the other hand, instead of restricting immigration from the overpopulated countries, wages are raised directly by decree, it merely makes the country still more desirable to immigrants, increases immigration, and, unless other and more drastic measures are taken, the resulting industrial reserve army will bring its long train of evils.

The employing classes, being presumably more familiar with the laws of the market than are manual laborers, have generally been able to out maneuver the laboring classes and to manipulate these factors in the equilibrium wage to their own advantage. They seem, at least, to have a fairly clear understanding of the procedure. An illustration of this is found in a statement of the late Frank A. Munsey before the American Bankers' Association in 1922. He, like many of his class, seemed to know exactly what he wanted and how to get it.

> The law passed by Congress soon after the war restricting immigration is wholly responsible for the present labor shortage. If this law had never gone on the statute books, if our portals had remained as free to immgration since the war as they were before the war and as they have been throughout our history, our inflated wage scale would have been well liquidated before now.

This furnishes an excellent example of the efficacy of the method of controlling price by playing with an economic equilibrium. It would take Mr. Munsey's class a long time and much hard fighting to beat down wages by the direct method. By simply removing the restriction upon immigration, the thing would, after that was accomplished, work automatically. Immigrants from all the low wage countries of Europe, Asia, Africa, and the Islands of the sea would swarm here seeking jobs. They would force wages down without further effort on the part of employers. If wages can be forced down by this simple device, they can also, if other factors remain the same, be maintained at the present level, or forced even higher, by further restriction, that is, by putting the American Continent, as well as Europe, on the quota basis.

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Again, if it is found that one factor in the equilibrium of the demand for and supply of labor is a low standard of living on the part of native laborers, that is, if it is found that they have such a low standard of living that they will multiply and keep the labor market well supplied on a low wage, then it will begin to appear that if the standard of living can be raised so that they will not multiply and offer themselves at such low wages, a new and higher equilibrium wage will establish itself automatically. That is to say, where laborers have a very high standard of living, one generation after another, it will take a very high wage to induce as many laborers to offer themselves for hire as employers are willing to hire.

If no one would marry and undertake the support of a family until he could have a savings deposit, a life insurance policy, a home, or an automobile, it is obvious that no children would be legitimately born except in homes where these things could be afforded. That would, in a generation or two, eliminate low wages and poverty.

If, however, the attempt is made in the opposite direction, and wages are merely advanced artificially without first raising the standard of living, such a rise may, with the exceptions noted in

a previous page, induce earlier marriages and larger families, (even assuming that immigration is restricted so that it cannot merely induce a larger immigration); and in the course of time the labor supply will be so great as to make it increasingly difficult to maintain the high wage level.

The difference between these two methods is really the difference between applying the remedy at the source and applying it to the symptom. One method proceeds by removing, first, one of the causes of low wages, and then leaving economic forces to effect a cure. The other method proceeds directly, leaving the causes out of account and trying to correct the resulting low wages by artificial means.

This does not mean that it is never desirable to treat symptoms. It is sometimes necessary, but only as a temporary expedient to meet an acute situation. It is, for example, sometimes necessary to reduce the temperature of a sick person by ice packs and other devices, though no physician would be content with this as a method of curing, much less of preventing a fever. It is necessary to remove, or prevent the occurrence of the factors which cause the temperature to rise. In the economic field, it is also necessary sometimes, to resort to unemployment doles, employment of the "out of work" on unprofitable public works, or even wholesale deportations, and other drastic measures to meet an acute state of unemployment, but no economist would be content with such measures as a permanent cure for low wages or unemployment.

On the subject of the standard of living and postponement of marriage and the limitation on the size of families, it seems that the employing classes have generally been able to out-maneuver the laboring classes. While carefully limiting the size of their own families by late marriages and other prudential policies, many of them, either themselves or through their spokesmen, deliberately advise working men to do the opposite. Small families among the employing classes mean small numbers of employers, or would mean that if it were not for a system of popular education which tends to recruit the employing classes from below. Small numbers of employers give each employer a great advantage. At the same time, large families among wage workers tend to increase their number, which is bad for them and good for the employers. If wage workers were as clear in their thinking as are these representatives of the employing classes,

they would encourage early marriage and large families among the employing classes, while practicing the opposite themselves. However, it sometimes happens that the spokesmen for the laborers play into the hands of the employing classes by advocating, mainly on sentimental grounds, the opposite policy.

Again, if it should be found that one cause of low equilibrium wages in certain occupations is the lack of educational opportunities, the remedy may be applied at the source by providing such opportunities. It must be admitted that certain economic optimists have placed too much dependence upon an assumed natural mobility of labor. In the absence of first-class educational opportunities there is no such mobility. Children who grow up in families who are too poor to pay the cost of education are practically doomed to follow those occupations for which no education is necessary. A system of free and universal education, especially if it is directed toward practical ends, greatly increases the mobility of labor. It gives every young person a wider choice of occupations. It is not, of course, pretended that the field of choice is unlimited, but it helps somewhat even if the number of choices open to the individual is only slightly increased. This gives him some opportunity to avoid the less attractive and seek the more attractive occupations. Again, the mobility is not achieved mainly by enabling the man or woman of middle age to shift from one occupation to another, though something may be done even here. Greater mobility is achieved when the oncoming stream of youth seeking occupations is enabled to spread itself more widely instead of being compelled through lack of education to concentrate itself in the unskilled occupations.

Such an improvement of the educational system as will give every young person as much education as he is capable of utilizing will raise the equilibrium wage in the occupations that were previously poorly paid. When large numbers have no choice but to enter the unskilled occupations, then at a very low wage as many will offer themselves in these occupations as employers are willing to employ; but when every young person has a wider choice of occupations it will take a higher wage in these occupations that were formerly poorly paid to induce as many to enter them as employers are willing to employ. If the educational system is comprehensive,—if it aims not merely to transform unskilled into skilled manual workers, but to move

everybody upward in the scale of occupations, then no occupation or class of occupations can possibly be congested.

This does not assume, of course, that low mentality can ever be trained sufficiently for the highest intellectual occupations. It merely means that men in every grade of natural mentality may be so trained as to fit them for slightly higher occupations than they would be fitted for without education or training. Even a moderate efficiency in an educational system would produce profound changes of this kind, that is, it would thin out the numbers that were compelled to follow the lowest grade of occupations and increase the numbers that were available for the highest or most highly paid occupations.

This may be illustrated by the following hypothetical table.

Distribution of Working Population Among Industrial Groups

Occupational Groups	*Assumed Distribution of Workers in a Country Without Popular Education* Per Cent	*Resulting Distribution of Workers in a Country with Popular Education* Per Cent
A	4	8
B	8	12
C	16	24
D	32	36
E	40	20
	100	100

Even though hypothetical it is sufficient to illustrate the principle. In this table we shall grade the occupations into five groups according to the degree of mentality required in each.[1] In group A we shall include the highest grade of occupations, that is, those in which properly qualified men are scarce and highly paid. In Group E we shall include the lowest,—those in which properly qualified men are most abundant and most poorly paid. The other groups are arranged between these two extremes. Let us assume that, in the absence of a system of popular education, only 4 per cent of the working population would be fitted for the occupations in Group A, 8 per cent for Group B, 16 per cent for Group C, 32 per cent for Group D, and 40 per cent for Group E. This inequality in the occupational distribution of the population would normally produce a wide inequality in the incomes of the different groups. Those in Group A would normally receive

[1] See Carver and Hall, *Human Relations*. D. C. Heath & Co., 1923, p. 229.

inordinately large incomes, those in Group E distressingly small incomes. In fact, it is found that the occupational inequality is always high in those countries where the educational system is not highly developed.[1]

But if in the same country or one with a similar distribution of natural talent, a highly efficient educational system were introduced as a factor in changing the balance, results similar in principle to those illustrated in the third column might be expected to follow. If the better 50 per cent of those who, without education, would be compelled to follow the occupations in Group E, could be trained sufficiently to enable them to enter Group D, this would leave only 20 per cent of the total population in the condition of being compelled to follow some occupation in Group E. Again, if half of those who would, without education, be fitted only for occupations of the D group, were under the educational system promoted to the C group, and half of those who would, without education, have to follow the occupations of the C group, were enabled to move on to the B group and so on to the top, we would then find the possible occupational distribution represented by the third column. This shift in the occupational distribution of the populace would disturb the equilibrium wages of all occupations and would tend to raise the wages of the lower grades, especially the very lowest, and to reduce the incomes of the upper grades, especially the very highest. In short, it would flatten out the curve of inequality.

If, instead of applying the remedy at the source, the attempt were made, without providing an educational system, to force up the wages of the E grade of occupations or force down the incomes of the A grade, a train of evils would follow, similar in kind to those described earlier in this chapter. The higher wages in the E grade occupations would take away whatever inducement there was for trying to avoid these occupations and get into the higher grades. A permanent surplus of laborers of the E grade would be on the market, offering themselves for hire at the artificially advanced wage, etc., etc.

Again, if it is found that one factor in the immobility of labor or in the congestion of the lower grades of occupations is drunkenness, the rational remedy is not to try to force up wages in those

[1] See an article by S. N. Procopovitch on "The Distribution of National Income," in the *Economic Journal,* March, 1926.

congested occupations artificially, but to reduce the amount of drunkenness. Dependability has become an important factor in the value of a man, especially in the higher occupations, and drunkenness definitely destroys dependability, and tends to make any one who is addicted to drunkenness, however capable in other respects, unfit for one of the higher occupations. A general state of undependability on the part of large numbers of potentially high grade workers results either in their demotion or in holding them down to the low grade or poorly paid occupations. The remedy for this situation, again, is not to decree high wages for those that are poorly paid, but to remove one or more of the reasons for those low wages. Low wages are universally the result of a congested occupation. The general promotion of sobriety would be another way of relieving that congestion. If that could be done, then without further effort, a higher equilibrium wage would automatically assert itself.

The equilibrium wage is not wholly a matter of the supply of labor; it is partly a matter of demand. With a given supply of labor an equilibrium wage is a low wage if there is so little demand as to create a situation where as many laborers will offer themselves at the low wage as will be hired, at that wage, by the limited number of employers. It may be found, therefore, that one factor in a low equilibrium wage is a lack of demand for laborers. In that case we need to analyze the factors that enter into the demand for labor. If it is found that one important factor is a lack of managerial skill, or the fact that few men go into business who have the ability to organize the factors of production effectively, that is, in such ways as to enable the products to be sold at prices which will induce consumers to buy, then the obvious thing is to see what can be done toward increasing the number and raising the quality of men who will go into industry as managers. A first-class school of business administration, if it can perceptibly increase the number and improve the quality of industrial managers, may be more effective in raising wages than 10,000 agitators demanding an immediate and direct rise in wages.

To try to force a small number of managers of low capacity to pay higher wages may simply bankrupt a number of them, causing them to close down and thus throw considerable numbers of laborers out of employment, again creating an industrial

reserve army, with all the train of consequences indicated in previous paragraphs. Any country in which business is held in low esteem, in which the universities uniformly try to train men for anything except business, will always have a scarcity of business talent. Its industries will always be run in the main by second and third rate men and will, in consequence and of necessity, be second and third rate industries which cannot possibly pay high wages. It is useless in such a situation to attempt to force wages to levels which the existing employers of low capacity would be unable to pay without bankruptcy. But if something can be done to increase the number and improve the quality of the employing class, industries will so expand as to raise the equilibrium wage automatically. That is, if the wages remain at the previously established equilibrium level, the new crop of superior managers and employers will be trying to hire more laborers than are offering themselves at that low wage. This will automatically bring about a readjustment. Under the new situation it will require a higher wage to maintain the equilibrium, that is, employers will be willing to employ at some higher wage, as many laborers as are willing to be hired.

If it is found that one reason for the small number and low quality of business managers and employers is the low esteem in which they are held, again the remedy is rather obvious. Talented and ambitious men are likely to be rather sensitive to the good opinions of their fellow citizens. If a man distinctly lowers himself in the opinion of his fellow citizens by entering business, many a man will be diverted into the more ornamental professions. This may result in a high development of the arts and graces of civilization, but it cannot possibly solve the problem of low wages. The only man who really solves the problem of low wages is the man who manages to pay high wages. The only man who can do that is the man who brings great capacity to bear upon the problem. The way to get men of great capacity to bring their ability to bear on this important problem is either to allow them very large incomes or, in lieu of pecuniary incomes, show them great consideration and esteem.

Generally these two forms of reward counterbalance one another. If business is generally held in low esteem, it will take a great deal more money, in the form either of high profits or high salaries, to induce capable men to turn to business, whereas

if such work is appreciated, not simply by the laborers themselves but by the general public, this appreciation is a very important form of reward and will become a factor in the equilibrium. It will induce so many men of capacity to enter business as to reduce their pecuniary incomes and increase the pecuniary incomes of their employees.

It may be discovered, in a given country, that one reason for the scarcity of men of high ability in business is the habit of retiring from business as soon as a competency is accumulated. Where that is the general habit, the most capable men will retire early in life, and the only men who will remain in business all their lives will be men of low capacity who can never accumulate enough to enable them to retire. Except for the brief and brilliant careers of men of great capacity, industries in such a country will be mainly in the hands of second and third rate men, will therefore be second and third rate industries, and pay second and third rate wages.

If this is discovered to be a factor in the low equilibrium wage levels the remedy is obvious. They who merely rail at business men and hold them up to the public obloquy are only making a bad matter worse. They make capable men more reluctant to enter industry, and more anxious to retire from it as soon as they can. Those highly intellectual men and women who do the railing would do infinitely more to benefit labor if they would show the business men, whom they think so stupid, how to do it, *i.e.*, how to run an industry in such a way as to pay high wages and the other necessary expenses out of receipts. If, however, their literary aptitudes are too specialized to permit them to excell as payers of high wages, they could at least use their literary power to encourage men who have the right kind of capacity to go into business and to stay in business. If they can accomplish that result, industries will tend to be run more and more by first rate men, to become first rate industries, and to pay first rate wages.

Again, if in a backward country it is found that the equilibrium wage is very low because of a lack of capital, then the obvious thing to do in that country is either to borrow capital from other countries or to start a thrift campaign in order to accelerate the rate of accumulation within the country. As between these two methods, the former is the more advantageous, for several

reasons. A principal and altogether sufficient reason is that it is easier to save out of large than out of small incomes. A country which lacks adequate capital, that is, adequate equipment in the form of engines, machines, rails, rolling stock and other aids to production, must necessarily have a small per capita income. Out of this small per capita income it would be difficult to save enough to pay for the building and making of the new equipment. By borrowing the equipment, or the means of purchasing it, the labor of the country can be promptly equipped with all the aids to production and this will at once increase the national per capita income. Out of this increased income it will be easier to save enough to pay off the debt than it would have been to save enough out of the previously smaller income to buy the equipment without going into debt. Even the Soviet Government seemed to recognize this principle when it attempted to borrow capital from the outside.

If any doubt exists as to the correlation between the amount of capital equipment per worker and the product per worker, and between both of these and the wages per worker, the following tables should keep to dissipate that doubt, thought they add little to what is already known to every theoretical mind.

PRODUCTIVITY PER ACRE AND PER PERSON ENGAGED IN AGRICULTURE IN VARIOUS COUNTRIES

Country	*Year*	*Acres per person engaged in agriculture.*	*Index figure of productivity per acre.*	*Index figure of production per person engaged in agriculture.*	*Ratio of production per man, United States to countries indicated.*
United Kingdom ...	1901	7.1	177	126	2.3
France	1901	7.3	123	90	3.2
Germany	1907	7.1	167	119	2.5
Hungary	1900	7.1	113	80	3.6
Belgium	1900	5.3	221	117	2.5
Italy	1901	4.7	96	45	6.5
United States	1900	27.0	108	292	...

(From U. S. Department of Agriculture, *Yearbook* for 1918, Table 290.)

COMPARISON OF TWENTY-SIX INDUSTRIES IN THE UNITED STATES AND THE UNITED KINGDOM

	United States—1909	*United Kingdom*—1907
No. of workers	1,983,000	1,700,000
Horse power used	4,779,000	2,009,000
Horse power per 1000 workers.....	2,400	1,200
Gross output per worker per year....	$8,735	$3,100
Net output per worker per week.....	$79	$11

(From J. Ellis Barker's *Economic Statesmanship,* pp. 519, 524.)

REAL WAGES IN FOREIGN COUNTRIES AND THE UNITED STATES, JANUARY TO OCTOBER, 1925. (From *International Labor Review*, April, 1926. P. 589.)

City	*October*, 1925	*July*, 1925	*January*, 1925
Philadelphia	100	100	100
Ottawa	88	81	69
Sydney, N. S. W.	76	77	70
Copenhagen	64	53	41
London	53	55	45
Oslo	52	45	38
Amsterdam	46	46	37
Stockholm	46	40	36
Paris	..	..	33
Berlin	35	34	29
Lodz	33	33	27
Brussels	31	32	28
Prague	31	28	29
Warsaw	28	28	23
Rome	..	27	23
Vienna	28	26	23
Milan	26	27	21

We may summarize the discussion thus far by saying that high wages will prevail in any country with reasonably good natural resources in which the following factors are all found working in combination.

1. A democratic tradition under which (a) every person, however humble his origin, is encouraged to make the most of himself and to climb as high on the economic ladder as his ability and training will permit, and (b) all useful occupations are regarded as equally honorable and in which, specifically, technical, managerial and entrepreneurial positions are held in as high esteem as the so-called learned professions or even literary and artistic careers, so that a fair share of the best talent of the country is encouraged to seek those so-called practical careers.

2. Habits of hard and prolonged work on the part of prosperous men, which will keep them at work even after they have enough wealth to enable them to retire to a life of ease and luxury.

3. An efficient system of free and universal education, by means of which men are enabled to climb as high on the economic ladder as their natural ability and their ambition will permit, thus thinning out the numbers in the lower and less paid occupations, and training more high grade men for the technical and managerial positions, who can so organize and equip industries as to make high wages possible.

4. An effective restriction of immigration which will prevent other and less prosperous countries from shifting their burdens of unemployment and low wages upon this country.

5. A high standard of living on the part of the laboring classes which will lead them to postpone marriage and the raising of families until they are economically able to support them on the high standard;—especially a rational standard of living which will lead them to postpone marriage until they can provide safety for their families in the form of education, savings deposits, insurance, and small investments.

6. Widespread habits of thrift which will ensure a rapid accumulation of capital, ample equipment for all industries, and low rates of interest.

These factors working in coöperation will raise wages and diffuse prosperity. This is a proposition supported by economic theory heroically applied. It is also supported by an appeal to facts when observed on a national and an international scale. Throughout the world, in proportion as those six factors are found working in combination, in that proportion do we find wages high and prosperity diffused. In proportion as any or all of them are lacking, in that proportion are wages low and prosperity either entirely lacking or limited to a few privileged classes. They are therefore submitted as the necessary basis for the technology of that kind of reform which aims at higher wages and a wider diffusion of prosperity.

THE RELATION BETWEEN STATICS AND DYNAMICS

John Maurice Clark

1. *Forecast of the Argument*

The task which forms the subject of this essay is essentially that of one who wishes to carry forward the work of his greatest teacher from the point at which that teacher left it. From this standpoint the main problem is how to proceed from static to dynamic economics. This problem will be viewed in the light of the fact that we possess a substantially complete static economics, while dynamics is in its infancy; of the further fact that statics is essentially provisional, a stepping-stone to dynamics, simplifying the problem by attacking first those features which do not involve change; and of the final fact that dynamics must restore realism by putting in everything that statics leaves out, so far as possible within the limits of human understanding.

In this view of the purpose of statics and the scope of dynamics, the writer is directly following his father's teachings on these matters. Naturally, in attempting to do justice to such an all-inclusive view of dynamics, it becomes necessary to utilise material derived from a multitude of sources, often widely divergent in character.

As to method of procedure, the question arises whether we should start with static conclusions, add dynamic elements one at a time and make allowances for the resulting "disturbances" of static equilibrium, or whether we should follow a more fundamental method, going back to the premises and replacing static by dynamic assumptions and then building upon them. This will, of course, require inductive methods in establishing the premises of a dynamic study; after which the problem remains whether, having got such premises, we shall be in a position to proceed deductively, or whether more induction will be necessary in reaching the conclusions of the dynamic study. The further question arises, to what extent it will be found that dynamics

differs from statics not merely in its conclusions but also in its problems.

In pursuing this question we shall first look at the origin of statics, finding it in one out of a considerable number of problems with which classical economics dealt. The development, however, of a complete static society, causes statics to reach out into the realms of the other problems, where this static method of approach is not so clearly indicated. It also appears that the conclusion of the more developed statics—the level of static equilibrium—is, in the earlier forms of the study, essentially an assumption based on observation; and the assumptions of the later form of the theory are, in a real sense, deduced from it, being the conditions necessary to bring it about. Thus the relations of premise to conclusion may with propriety be reversed, or the entire structure be regarded as an assumption, to be justified by its usefulness in interpreting facts of experience.

So far as dynamic conditions differ from static in mechanical ways only, static conclusions may be converted into dynamic by quantitative allowances; but so far as the differences are qualitative or "chemical" in character—to use the figure employed by John Stuart Mill,[1] the more far-reaching methods are indicated, and new inductions are likely to be necessary.

In examining the assumptions proper to dynamics, these are found in many cases to differ from static premises in qualitative or "chemical" ways; including the dynamic character of human nature and the evolution of institutions. The result is to broaden the scope and modify the character of the study. The work of J. B. Clark includes examples of both the narrower deductive and the broader qualitative modifications of statics. The former are found in his *Essentials of Economic Theory,* while the most challenging fragments of the broader type of study are contained in his earlier work: *The Philosophy of Wealth.*

If dynamics must be built largely by new inductions, what will be left of statics? In the first place, dynamics will never answer all its problems, and the static answers, provisional as they are, will to that extent continue to fill their former place. In the second place, in relation to the original static problem of levels of prices, much can be done by quantitative modifications of

[1] John Stuart Mill: *A System of Logic,* Book III, Chap. VI; Book VI, Chap. VII. J. B. Clark also uses this figure. See *The Philosophy of Wealth,* p. 33.

static formulas. And in the third place, throughout dynamics there will arise situations which will be clarified by a reference to a set of static assumptions—not necessarily a complete static economy—for purposes of comparison. This will probably, more often than not, take the form of that kind of inverse deduction already mentioned; the reasoning running thus: to bring about such-and-such results, such-and-such conditions are necessary. Actual conditions differ in such-and-such respects. Hence we should expect actual results to differ in such-and-such general ways. Or, if actual results differ in given fashion from the static, a probability arises that the difference is due to the discrepancy of conditions from the static ones. This is a use of static reasoning eminently suited to dynamic studies.

2. *Origin of Statics*

The contrast which we are considering is between realistic economics and economics simplified by the method of static abstraction, which studies levels of equilibrium under abstract conditions. These make equilibrium possible (1) by eliminating elements of disturbance and (2) by confining the adaptive forces and processes to those which are self-limiting and not cumulative in character. Static economics, of one sort at least, is complete in its main outlines. It is not wholly past the stage of controversy, nor of further developments, but the controversies are largely matters of proper formulation rather than of the essential logic of the main structure; and the further developments, aside from reformulations, are matters of detailed refinement whose accuracy is hardly justified in view of the wide gap between the assumed conditions on which the whole structure rests and the reality in the interpretation of which its ultimate service must lie. The significant field for present work lies in the development of more realistic economics, which may be defined, in contradistinction to statics, as dynamics. Unlike statics, dynamics is in its infancy, and very possibly is destined always to remain in that stage, on account of the fact that conditions change so fast and so endlessly that analysis and interpretation cannot overtake them.

But the difference between statics and dynamics is not merely a matter of simplification of the data of the problem. This simplification has its roots in something deeper; a delimitation of the problem itself. Hence we should be prepared, in stepping out-

side the limitations of statics, for an enlargement of the scope of our problems as well as of our data. The relation of statics to the scope of economic problems can be seen by a consideration of its origin.

The most highly developed form of static economics, that of J. B. Clark, arose out of the attempt to make explicit the real assumptions underlying the search of the classical economists for "natural" levels of prices, and of their "component parts," wages, rent and profits.[1] But this is not the one all-embracing problem in the classical economics. We may distinguish six major problems or groups of problems, arranging them roughly in the order of the emphasis they receive in *The Wealth of Nations*. First is the theory of national efficiency from which the book derives its title: the search for the most efficient system of organization of the production of wealth on a national scale, and for the policies appropriate to put this system into effect. Second is the search for the "natural" levels of prices, wages, rent and profits. (With Ricardo, this takes first place in emphasis.) Third comes a study of the variations of economic behavior from the type indicated by the "natural" levels of things. Fourth comes the relation of economic quantities to utility or to human well-being. Fifth is the question how things came to be as they are—here belongs Smith's "propensity to truck and barter," and his discussion of the order of development of town and country industry. With this should probably be grouped speculations as to the future. And sixth comes the question of the justification of the underlying institutions, such as property. This is, of course, inseparable from the first question, but the nature of the connection appears to have been seen but dimly. Smith's theory of national efficiency is at once a conditional justification of private property and free contract, and dependent for its validity upon the proper operation of these institutions. But with Smith they are taken for granted as natural rights, and the full nature of this problem was not realized, at least in this country, until it was forced on our attention by the evolution of these institutions, bringing visible changes in the content of legal rights, to meet economic needs and protect economic interests. In other words, this problem has little meaning until it takes a dynamic, rather than a static, form.

[1] J. B. Clark, *Distribution of Wealth,* Preface, p. vi.

Of these six groups of questions, one is in its very nature static—the search for "natural" levels of prices, etc. Two are in their very nature dynamic—the study of "whence" and "whither," and that of departures from the "natural" levels of things. These three between them constitute the more impartially descriptive section of the inquiry. The other three groups of questions are evaluative—the relation of economic quantities to utility and to human welfare, the theory of national efficiency and the justification of the underlying institutions. The more one considers these questions, the more is one convinced that in this realm dynamic considerations are paramount; until one may even doubt whether the questions have workable meaning apart from dynamic change. But the question of utility and welfare has received a static answer in the marginal utility theory; and the static economics colors the view of the other two questions, as we shall see.

With Smith and Ricardo there was a loose and uncertain connection between the law of the natural level of price, on the one hand, and the three evaluative problems, on the other. Price did not measure utility; and while wages-cost was thought to be an approximate measure of labor's sacrifices of production, even this idea did not stand the scrutiny which led to Mill's statement that the hardest work is often the poorest paid, and to Cairnes' theory of non-competing groups. Ricardo specifically separated "value" from "riches," or the abundance of goods. So long as the search for "natural levels" of price and of the shares of distribution is in a rudimentary stage, and its premises not fully realised or expressed, it remains simply one out of a number of major problems, each of which is dealt with in such terms as appear appropriate. The static character of the one problem does not necessarily govern the treatment of the others. The comparative independence of the theory of value and the theories of welfare and of efficiency is a striking feature of the early classical economics.

The early theory of institutions was static in a slightly different sense. They were taken for granted as natural, and even after Bentham dethroned this view, private property and contract were looked at as "unit characters," so to speak: things with fixed characteristics, which might be wholly kept or wholly discarded in favor of public ownership or communism, and which were to be justified or condemned *in toto*. An evolutionary view,

on the other hand, raises an endless number of problems which the static view leaves out of sight, and calls for justification of one form of an institution as compared to other possible forms, and for a weighing of the interests protected by one definition of rights as against the interests protected by another.

Returning to the questions of welfare and efficiency, their early independent character has been vitally affected by two great developments. One is the Benthamite utilitarianism and its natural sequel, the marginal utility theory of value. The other is the development of the search for "natural levels" into a substantially complete static picture of society: one in which "natural levels" would exist, would be stable, would be attained. This hypothetical society has its characteristics and laws of efficiency, and of the relation of price to welfare, and thus statics enlarges its scope and annexes new ranges of problems. The means used to approach the problem of levels of price becomes, as a by-product of its own fuller working out, a source of provisional answers to these other questions which were not originally cast in a static mold. Is the static method as appropriate to these other questions as to the original one? Without prejudging this question, for or against, we should preserve an open-minded attitude on it, and be prepared for the possibility of finding that dynamic economics may need to reëstablish the autonomous position of these various problems. Not a complete isolation, it goes without saying. We should also be prepared to find old problems taking new forms, and new problems arising, suggested by the new ranges of data which dynamics forces us to consider.

3. *The Problems of Dynamic Economics*

The key to statics, as we have seen, is a problem: that of levels of equilibrium. This is an abstraction based on observation of the relative stability of economic values, and of oscillations whose behavior suggests a normal level toward which the economic forces of gravity exert their pull. The key to dynamics is a different problem: that of processes which do not visibly tend to any complete and definable static equilibrium. The importance of this shift from the search for levels to the study of processes can hardly be overemphasised; it is not less significant than the change from static to dynamic conditions. It might be interesting to try the experiment of assuming static conditions,

except that prices, shares in distribution and the allotment of productive factors are not at their static levels, and then to focus attention on the processses by which the ensuing adjustments will be made as economic forces seek their levels. Carried out with vision and imagination, such a study would go a long way toward the development of dynamics.

Dynamics, then, is not limited to the examination of the discrepancies between actual values and their static levels. Nor is its study of processes to be confined within the subject-matter of value and distribution as such; since these processes reach out into all aspects of life. To illustrate this, we might start with the narrowest possible problem that can be called dynamic: that of discrepancies between actual values and their static levels, and see how far this problem will carry us in the search for a solution.

Why do prices seldom reach their supposed static level and never remain there? The answer involves the whole baffling problem of the business cycle. Among the causes of this phenomenon are, apparently, original disturbances from outside the economic system proper; such as wars or climatic cycles affecting agriculture; but the character of the cycle is more directly determined by the processes through which the business system adjusts itself to these disturbing forces. Here it appears that there are not merely forces of the kind which may be described as self-limiting, but others of the cumulative sort, and that the self-limiting factors do not operate effectually until after the cumulative forces have driven things so far that a reaction is produced, which in turn goes so far as to produce another revulsion. The study of this process leads into the realms of the credit mechanism—or organism—markets and contracts, the interrelations of debtor and creditor interests, and of buyer and seller interests, technical factors governing the behavior of costs of production under conditions of varying output, forms of contracts governing the financial incidence of these variations, the relative responsiveness of labor costs to such changes and, underlying this, all the elements of bargaining position, customary standards and other psychological elements influencing the behavior of wages, and many other factors. In short, the problem reaches out into the fields of technical production, of human nature and of social institutions. We are carried, for instance, into a treatment of wage levels (and

of limitation of output) in terms of the ever-present fact of unemployment rather than in terms of the theoretical tendency of supply and demand to become equal.

Or, if we search for the causes of discrepancies of utility and disutility from their static standards, we are not merely led into the whole question of human nature, but into the processes by which, and the conditions under which, decisions are made: into the nature and adequacy of available alternatives and their relation to the reality of competition, into the elements of compulsion in "free" exchange, into the changing character of the human costs of industry, as affecting body, nerves, morale and social relations, into advertising and the whole system of economic guidance, into standardized contracts and the force of law and custom in determining the incidental terms of contracts; the whole culminating in a picture of the biased and imperfect character of the market as a means for the expression, furthering and protection of different kinds of interests, and the need of other forms of protection than those afforded by "free" contract.

From another angle, if we study "dynamic friction" we are led into the whole question of the processes of bargaining and negotiation, with their weapons of maneuvring and obstruction, of information and concealment, of offering and withholding, and of the effect of it all on the underlying processes of production—something which can probably never be reduced to measurement. This opens up the area explored, for instance, by Veblen in his *Theory of Business Enterprise*. In short, we are led into all the aspects of economic life and its essential conditioning human facts and institutions; and if not into evaluative judgments, at least into those facts and relationships on which such judgments must, if they are intelligent, be based.

4. *Dynamics of Human Nature*

The static view of man is embodied in the marginal utility theory. This is an advance on the classical view in two respects. (1) Instead of focusing on self-interest and the reproductive instinct, it allows for all the motives of man, while remaining simple enough for deductive treatment. (2) It is an answer to the classical conclusion that price could not be a measure of utility, because coal, for example, has more utility than diamonds, but less value. As a rebuttal of this blank negative, establishing

an approximate relation between price and utility, the theory is true. While it is, as has been said, a natural derivative from the Bentham psychology, it does not depend on the "calculus of pleasure and pain," but can be presented in terms of any other description of human motives; so long as the motives behave in a certain way. The essential assumption is that the individual has a scale of values or preferences: good or bad, wise or foolish, conscious or unconscious; and that his various economic acts are the expressions of this one scale of values.[1] They are consistent; the scale holds while he is making the various decisions which are involved in the budgeting of his time, energy and resources.[2] Thus the values in his personal economy reach an equilibrium which is the parallel of the static equilibrium of prices in a market. This fact is expressed either as an actual tendency, or as an ideal of good personal management. As indicated, it has sufficient truth to justify its place in a static economics, being itself a static assumption.

In contrast, in the attempt to put together the most realistic picture of human nature for which the materials are readily available, one is struck by its prevailing dynamic character. It contains static elements, but they differ essentially from the static character of the marginal-utility assumption.

Man is a mechanism of stimulus and response, conditioned not only by the present stimuli to which he may be exposed, but by past stimuli which have played their part in shaping the personality with which he now responds. Desires and ideas are not separate, but ideas are themselves impulses to action. Deliberative choice—the nearest approach to the rational action of theory—is a check on this tendency to act on the immediate stimulus, and a very imperfect check. Even the static elements of instinct or inborn tendency, habit and custom, change their quality when placed in a changing environment. Adapted to a past environment, they may be unadapted to the present,

[1] No consideration is here given to that form of the utility theory which attempts to be completely agnostic as to how human choices behave and to deal only with momentary preferences. But the writer believes that this type of theory acquires meaning just so far as there is attached to it some premise as to how choices actually do behave.

[2] The writer has elsewhere gone into this point in more detail. See "Economics and Modern Psychology," *Jour. of Pol. Econ.*, 26; 1-30, 136-66; Jan.-Feb., 1918. These articles contain the material on which this entire section is based.

and the maladjustments which result are a part of the dynamic theory of human nature.

And human nature is paradoxical. The pleasure we take in many activities is not the reason why we want to do these things: the reason goes back to our inborn equipment of impulses and the particular forms which our environment has caused them to take; and pleasure is apparently a secondary and reinforcing factor, strengthening certain types of activity which have survival-value, and hence having survival-value itself. Biologically, it is presumably a means to survival, and justified on that ground and to that extent only. Our impulses are sprung from primitive nature; and primitive nature is lavish of life, of death, of motives and of suffering. This fact of nature is constantly at war with our recently-developed ideal of economy. In particular, the strength of those desires which have their roots in the primitive, is adapted to conditions of struggle for existence in which wants could not be satiated, or else the world was saved from the results which would follow satiation under civilized conditions. Hunger could not be permanently satisfied; the fighting impulse could not render itself obsolete in a *pax Romana;* and the particularly lavish reproductive instinct could afford to run riot because nature employed, for the ends of biological progress, a method of keeping down the increase which, from the standpoint of civilized man, is wholly intolerable.[1] Now we save the weak, outlaw the fighting impulse (until a war occurs) and are free to overeat habitually. Thus the power to gratify wants brings with it new conditions, some of which are even dangerous, unless we can find substitutes for the checks imposed by primitive nature.

Reason itself is paradoxical when it takes the form of "rationalizing" or evolving ostensible motives for actions, where the real motive is one which civilized standards deem less respectable, or one which might even have to be suppressed unless it could be successfully disguised. Here means and ends become confused, and mere introspection cannot extricate them with any certainty. "Rational" weighing of values is also paradoxical in that it is irrational to pursue it to the point of perfection. To do so under modern conditions would leave no

[1] Even primitive men, however, exhibit numerous institutions the natural effect of which would be to keep down the birth rate.

time or energy for earning a good living or enjoying the fruits of one's labors. It is rational not to look after one's interests perfectly in every respect and every relation of life; and this fact has real significance in judging the effects of an economic system which is built on the supposition that every individual does look out for his own interests in all his relations with his fellowman. Rational decision can attain perfection only in dealing with things familiar and customary, but it is only needed in dealing with things new and not yet reduced to custom or routine. And those strategic decisions called "marginal" include many and significant departures from the static norm of rationality.

The so-called "instinct of workmanship" is another paradoxical trait, for it is essentially one whereby any means may become an end in itself: a worker gains interest in the technique of any process which the attaining of his ends make necessary, and having done so, he may lavish his efforts, rather than economize them, or even sacrifice the end to the technique. Yet this waste and possible perversion is the price of that direct interest in the work as such, without which the most effective work is not possible. Here again, perfect efficiency, conceived after rational models, is an ideal which is not in accord with human nature as it is actually constituted. Waste of some sort is inevitable.

Since intelligent choosing is so largely a matter of "trial and error," it is important to ask how the errors operate, how they correct themselves (if they do so) and what happens if they do not. For our purposes "error" is probably an unfortunate term, suggesting as it does a mathematical calculation or the determination of an objective fact, in which there is one accurate result and departures from it can be definitely determined. This is true in many cases, especially in the field of business decisions, where it is a question of cheapening production or increasing profits. This also applies to consumption, so far as it is a matter of economical use of particular means to attain a definitely given end. But where it is a case of choosing between different ends, the case is altered. Here there are two great classes of choices: those in which it is possible to sample alternatives and then follow for the future the one which experience leads one to prefer, and those in which such sampling is difficult or impossible and the individual may be disappointed in his choice without knowing that another course would have produced greater

satisfaction, or may be reasonably satisfied without knowing that a different policy would not have worked still better. Even successful business policies are commonly of this latter sort. They are not the best that could have been done; but so long as the errors are not greater than those of one's competitors, one may never be forced to those further experiments by which alone it can be determined that anything better is possible. Even where sampling is relatively easy, as with consumption goods which are bought repeatedly, it involves some trouble, and is not likely to be carried to anything like completeness. And thus many errors persist, and it is possible to fool some of the people all of the time.

Some errors are cumulative in their effects rather than self-correcting. They have permanent effects on the individual's character or opportunities for revising his course for the future. This is particularly true of the choice of an occupation. By accepting a poverty wage and a low standard of living one may be accepting also a low level of efficiency which will tend to make the poverty permanent; [1] or by entering the field of casual labor, one may be accepting also the mentality and social ideas and ideals which go with it, and which may be inconsistent with those qualities we think of as the "economic virtues," and with the ability to strive effectively for something better. This does not mean that free choice is not still the best system, but it does give added meaning to the well-known principle that freedom needs to be limited and safeguarded to prevent it from being so used as to destroy or limit effective freedom for the future: and it emphasizes the point made by Cooley, that freedom and degeneration are definitely linked together. Moreover the ideal to be sought is not a static one of perfect use of freedom, but a dynamic one of an educational character. It involves tasks proportioned to one's ability to perform them with sufficient success so that one may grow in the process, and safeguards against the most disastrous results of errors.

This raises the question of levels of intelligence and capacity, and here we are faced with the fact of great differences within the population. Dynamic economics cannot work successfully with the idea of one "economic man." Even if the non-existent average individual could be found, still departures from this average would be important enough to demand consideration.

[1] *Cf.* Marshall, *Principles of Economics,* (5th ed.), pp. 560-63, 569.

This is true also of differences in temperament producing biases of judgment and susceptibility to different types of biased appeal. Wherever such susceptibilities exist in considerable numbers, people will find a profit in catering to them or exploiting them, and this is one of the essential facts of a dynamic economy.

Then there are more external differences, not of temperament and capacity but of available knowledge and information; and this raises the further question of methods of putting the available knowledge and information at the service of the unspecialized citizen, that he may be able more successfully to cope with the interested parties with whom he has to deal, who have specialists at their service. In these respects the actual economic system works far better than it would if it were really one of pure and unmitigated individualism—which would be clearly intolerable—and this means that to understand the system we must interpret it as containing a large admixture of non-individualistic action, both public and private, and action governed by incentives and motives other than material self-interest. These cannot now be dismissed as non-economic, for they are necessary parts of the explanation of how the business system actually works, as well as of plans to make it work better.

It is obvious that the varied and complex human nature which has been roughly sketched does not lend itself to much definite and simple deduction. A realistic view of man is sufficient in itself to make dynamics largely an inductive inquiry. Further significances of this will appear as we glance at certain of the other premises of dynamics, dealing with a few of the institutions and conditions under which human nature works out its economic destiny.

5. *The Dynamic Concept of a Transaction*

The basic element of economic life—a transaction of exchange—is so complex and varied as to be inadequately represented by any simple stereotype of "free exchange." Freedom implies that neither party is dependent on relations with the other, and that a refusal to accept a given offer will leave tolerable alternatives open.[1] But as such relations become habitual people become in a

[1] The writer has developed this point elsewhere. See *Social Control of Business*, pp. 37-8.

real sense dependent on their continuance, and the refusal of an employer to continue dealing with an employee, in certain states of the labor market, may leave him an alternative which is anything but tolerable. There is real compulsion in such a situation. Under competition, the compulsion is not the arbitrary doing of any one employer, but employers as a group may benefit by it; and competition is not perfect enough to prevent all compulsion of a more personal sort.

Further, a transaction is supposed to be agreed to by both parties, but actual transactions often include many matters in which one or both of the parties exercise no choice or have no effective option. The terms and conditions of employment have never been very largely determined by free individual bargain, but rather by the custom of the trade, by the changing techniques of production at the command of the employer, by social legislation and, of late, by collective bargaining, which is not an individual affair, and involves all the problems and difficulties of representative government. In some respects, what we have is not so much a system of free contract as one of standardized relations, into which one is free to enter or not, (subject to the general compulsion of entering into some relations in order to get a living), but many of the terms of which one is not free to change. And the methods of settling these standard terms, and the interests which control them, are evolving continually.

The power to withhold, which is the key to the meaning of liberty, itself varies with changing economic conditions and legal institutions. Also the freedom of third parties—their immunity from having their interests infringed—is not absolute, and is itself evolving with the development of new kinds of injuries and new kinds of protections. The Federal Reserve System, a collective and not an individualistic institution, is one way of protecting business men from being caught in a panic as the result of the things other business men have done; and this protection could not be afforded by any more individualistic method.

6. *Collective Economic Personalities*

Modern business is carried on, not by individuals, but by vast collective organizations, to which the classical economists did not apply their individualistic principles. Free contract with such organizations is only a pseudo-individualism. In their operations

the interests of many groups are involved: stockholders, bondholders, managing employees, laborers, those who sell to them, those who buy from them, those whose property values are affected by their operations, their competitors, and other fellow-members of the general business community. Some of these interests are expressed through the machinery of free contract, some by that of representative government, industrial or political, and some by no recognised machinery. Moreover, the real character of the machinery is different from its nominal character, and is visibly changing, as a result of the fact that it is not uniformly appropriate to its task, and leaves some interests without adequate means of expression and protection. This evolution is one of the very vital things which is now going on in industry. The trade association is only one expression of it.

In this economy of organizations, the motives of individuals shift from a simple and exclusive attention to personal self-interest, and come to involve a considerable measure of loyalty to collective interests. This loyalty may be made the best policy, up to a certain point, but not sufficiently so to prevent a director from being able at times to make more money at the expense of his company than by loyally serving its interests. And there are conflicting loyalties, as every schoolboy or union worker knows—the psychology of these two groups is in some respects quite similar. The contrast between public and private conduct of business is not the simple thing it once was, but is a contrast between two systems of exerting pressure on a large force of hired employees, the difference hinging on the incentives of those in ultimate control, but often taking very similar forms as it reaches the actual worker.

7. *Legal Institutions*

Passing on to the legal institutions which underlie all this, we may note that where the earlier economics was content to ask: what is the justification of private property or occasionally: what was its origin, the realistic economics asks the more inconvenient question: what is private property and what is it doing? And just as a commodity has been analyzed into a "bundle of utilities," so property is analyzed into a bundle of rights and privileges, its content defined by law, varying significantly in different legal systems and changing from time to time as the systems

develop. When wealth is defined as that which is useful, limited in supply, appropriable and exchangeable, one does not at once realize that the last two characteristics are determined by the law, which therefore decides what shall be wealth, and what shall be the scope of economic study.

A static economics may, perhaps, consider that it applies to whatever is appropriate and exchangeable under existing law. And if changes in the law result in broadening or narrowing the range of utilities which may be appropriated and bought or sold, the subject-matter to which the laws of static economics applies may be said to be enlarged or reduced; while the nature of the laws themselves remains unchanged. Thus these laws would be unaffected by such changes. But a realistic or dynamic economics will want to know all about such interesting changes, and will find therein most pregnant implications as to potential changes of the same sort which have not actually been made. Its picture of interests, utilities and disutilities will do its best to be comprehensive, and not leave out any merely because the existing law declines to afford them specific protection. Indeed, interests which the law does not protect will be even more interesting than those which it does, for they will create problems and be the probable focusing points of future changes.

The function of economic life is to serve the interests of human beings, so far as they may be served by business processes. Price is one agency for furthering that purpose, and those interests which command a price are the ones served by the system of private enterprise. Some interests are of such a character that they might command a price but do not under existing laws. If we are to judge the effectiveness with which the function is being performed, and the success of the system of private enterprise in performing it, we shall stultify the inquiry if we do not contemplate the whole function, and include all the interests, whether they command a price or not. Otherwise we prejudge our inquiry by defining the function itself so as to include only that part of it which the particular agency covers. If we see no interests except those which command a price, we are hardly in a position to make a searching scrutiny of the adequacy of price as an agency for the furthering of interests. Thus the theory of inappropriable wealth [1] and its twin-concept, uncompensated costs, become an important part of economic dynamics.

[1] See *The Philosophy of Wealth,* pp. 12-15.

8. *Ethical Forces*

A legal system which should protect all interests is unthinkable, no matter how much it might be developed. And where the law ends, the peculiar realm of ethical obligation begins. One of the striking developments of the present generation is the recognition of common interests and collective obligations of a moral nature, and the formulation of codes of fair practice by great numbers of trades. And many of the unwritten codes are more powerful than the written. Some of the articles of some of these codes have tremendous force; such as the unwritten article which, if violated, brings down on the violator the epithet: "scab." Others are probably little more than words on paper. The question what these codes really are and how they operate, as well as how they need to operate to perform their social function satisfactorily —this is a fascinating inquiry with which very little has as yet been done. And it is an essential part of any survey of representative economic forces.

Another question is how much the sense of right and wrong alters the bargaining force with which persons and groups strive to further their interests. To what extent will a sense of the inequity of the terms offered to labor lead the worker to submit to unemployment rather than accept? To what extent may a similar sense of a fair wage in the mind of the employer himself lead him to refrain from taking advantage of the opportunities for depressing wages which would be afforded by the unmitigated law of supply and demand, in time of business depression and unemployment? To what extent is a sense of inequity one of the forces back of certain varieties of restriction of output by labor? To what extent is a strike a moral phenomenen, and to what extent are the outcomes of strikes governed by moral forces?

9. *Competition: Its Various Degrees*

Considering the central part which competition plays in economic theory, singularly little effort has been spent defining it. For static purposes, it can perhaps best be defined as whatever behavior among independent producers is necessary to bring about one price for one good in one market, at the level of "normal" expenses of production. Under actual conditions, price does not tend to an exact level on a typical market, normal expense of production is an inference rather than an observable

fact, and actual expenses differ widely, so that their relation to price offers material for much inductive study.[1]

Among the special situations of actual competition are those preferences and habits which give rise to "good-will," and the ownership of brands which have some real or supposed uniqueness and thus have some of the quality of monopoly about them, but of which only the most successful can earn a consistent quasi-monopoly profit. Another situation is the state of mind among entrepreneurs which leads to sustaining the price in the face of the fact that the demand is falling off and will not take the full "supply" (a term which itself needs redefining for dynamic purposes). Those mores of business which resist cutthroat competition and the "spoiling of the market" are phases of actual competition, yet they have no place at all in the competition of abstract theory. Another situation is that of a trade in which there are one or more concerns so large that their price policy is said to "dominate" the trade, in spite of the existence of many smaller rivals. Such a situation cannot be fully and quantitatively explained by deduction from the assumption of independent and self-interested action, though a shrewd observer of human nature in business may make surmises which will afford useful first approximations and material to be tested by further inductive study. To mention only one specific instance, the degree and kind of competition among American railroads—which are clearly far from being complete monopolies—is probably not exactly the same as that found in any other business, and can best be handled by direct induction.

10. *The Business Cycle*

Assuming without argument the great importance of the business cycle and the need for inductive study in handling it, let us ask further what its effects are on some of the general assumptions which economic theory is accustomed to make and the tools it is accustomed to use. For one thing, in place of a universal tendency of supply and demand to equality, it exhibits a definite tendency toward persistent inequalities. And in place of supply of goods it forces us to look at the productive capacity or potential supply, if we are to get at the forces actively at work on the

[1] This topic is given more extended treatment in *Social Control of Business,* Chap. IX.

supply side of the balance, though the more important forces appear to be psychological. Along with this goes a transformation of the static idea of a margin of employment. It becomes clear that the rewards of labor and capital bear no close relation to their marginal productivities at any given moment; and if there is a long-run marginal productivity which has a close relation to the rewards of labor and capital, it requires careful redefining.

11. *Overhead Costs*

In all this a large part is played by the existence of overhead costs, or costs not specifically traceable to particular units of output, and costs which frequently do not vary with the variations of output, or not in anything like the same degree. At its most difficult levels, the problem of overhead costs is identical with the problem of surplus capacity. It gives rise to the danger of cutthroat competition, to the practice of discrimination with its uses and abuses, to the wastes of irregular production and to the chief financial incentive to their removal, and to some of the most definite of those ties of common interest which nowadays bind producers together into a genuine business community.

A concern which expands its orders is bestowing intensified gains upon those with whom it deals, for their expenses will not increase as fast as their output—within limits. And a concern which reduces its purchases is imposing an uncompensated burden on the rest of the business community, because their costs cannot be made to shrink as fast as their output. The concern which reduces its purchases does so in order to retrench, but the entire business community cannot retrench to anything like the same extent, and it is a doubtful question to what extent it can really retrench at all at a time of general depression. But even aside from this question of shifted burdens, it is clear that overhead costs introduce doubt and ambiguity into the most essential economic service of costs: the service they render when we compare values and costs to decide whether a given thing is economically worth doing. Thus the economist is deprived of one of his ready-made yardsticks of economic soundness, and must repair the loss somehow, not trusting the results of private enterprise and private accountancy to be necessarily correct from the standpoint of community economy.

12. *The Concept of Capital*

The shift from the static to the dynamic point of view has quite far-reaching effects on many of the fundamental concepts, of which we may take, as examples, the concepts of capital and of production. The term capital really applies to a rather large family of ideas, as can be easily seen. Some writers have attached the term to one of these ideas and some to another, and dynamics must solve their controversies by including all these ideas as parts of the process, or institution, to which its studies are directed. And certain things which no one has included in the *definition* of capital are still such vital *prerequisites* that they become essential parts of the picture which the term must convey to anyone studying it from the dynamic standpoint, as a process or institution.

One of the essential starting-points is a productive idea. Ideas, knowledge, habits and customs of the shop and market-place, constitute a vitally important form of social capital: possibly the most vital form. Without it, nothing else can have value. It is in the main a common heritage, but differential advantages are elements of private wealth, and the whole is far from being a "free good."

Of joint importance with this is the "waiting" or abstinence of the original saver. And some writers make "waiting," rather than physical or financial capital, the third great factor of production, using it for the purpose usually assigned to capital in the general theory of distribution.

As the result of waiting, there is a fund of purchasing power destined to investment. Related to this is a fund of lending and investing power in the hands of financial institutions. Being invested, this becomes a quantity of purchasing power in the hands of an entrepreneur who is looking to spend it on productive assets. All these are forms which capital takes, and while only a part of capital is in any of these forms at any one time, it is that peculiarly mobile part by which marginal adjustments are typically made, and thus holds a particularly strategic position.

Another obviously essential part of the process is the existence of supplies of "capital goods" or productive assets which the entrepreneur wishes to buy and use. These are, of course, capital in the enterprises that make them; but their availability conditions the dynamic behavior of capital in the industries which buy

and use them. If they are not forthcoming, an increased flow of money into the coffers of entrepreneurs may not increase the physical amount of capital, but only raise the prices of the constituent "capital goods." [1] Thus for certain purposes, to find if capital can be increased, we must look to the supply of facilities for the production of the capital goods on which the funds in question are destined to be spent. America's war-effort to make guns, airplanes and ships is an illustration of the kind of limitation we are considering. There was no lack of funds, but the mobilization of funds far outstripped the fastest possible mobilization of the machines-to-make-the-machines to make the guns and other specialized equipment. The limiting factor was not capital in a financial sense, but physical capacity to make capital goods.

If the capital goods are available, certain kinds and amounts are selected and fitted together into what is really a new organism: the productive equipment of a going concern. This maintains its existence by the process of replacement. It may be viewed as investment, at original of reproduction cost; or it may, finally, be viewed as capitalized earning power or as rights therein; these being the last but not the least important members of this family of concepts.

Where the problem is static, most of these different phases of the process involved in capital may be ignored, and attention focussed on original savings and on the resulting fund of productive equipment. No error is involved in assuming that the loan fund of purchasing power goes hand in hand with original savings and automatically calls into being a corresponding amount of capital goods, while there would be no discrepancies between original cost of equipment, reproduction cost, and capitalized value of earning power. Earning power would depend on technical productivity and not on other factors. An interesting test of this proposition is found in the fact that Böhm-Bawerk's concept of a time-period of production and J. B. Clark's concept of a fund of technical equipment are for static purposes so close together that there is a *prima facie* case for the position that they are in effect identical and interchangeable, in the realm

[1] An extreme assertion of this fact is found in Veblen: *Absentee Ownership,* pp. 86-8. His view here is like that variant of the wages-fund theory in which the wages-fund consists of goods destined to be consumed by labor. Veblen implies a capital-goods-fund of similar character.

of statics. But where the problem and conditions are dynamic, discrepancies between the behavior of these various elements are of the essence of the inquiry. Investment funds are spent on other things than technical productive equipment, and capitalized earning power rests partly on these other things, and partly on things for which no investment funds may have been spent at all. These elements must be carefully distinguished and their relations to each other inductively studied. No one of these aspects of capital can be made paramount or all-sufficient at the expense of the others. All must be recognized, and some sense of their dynamic interplay must be a part of that concept of capital which is to be an appropriate tool of dynamic study.

13. *The Concept of Production*

The static problem and static assumptions make it possible to treat production as a quantitative addition to human gratifications, or at least to the means of gratification. Human wants are taken for granted, and the molding of wants is therefore not a part of static production. The protection of legal rights prevents the wants of some from being gratified at the expense of others, and competition prevents business incomes from being increased by withholding gratifications rather than by creating and bestowing them. The perfect static market prevents any gains being made by sheer "higgling and bargaining." Thus the so-called technological concept of production is applicable, and is an adequate description of the process by which income is to be secured, in the static state. The process of bargaining, and the characteristic work of the entrepreneur, have, before the static equilibrium can be fully reached, worked themselves out to the point of zero return and have no further functions to perform, either from the standpoint of private gain or social production. Thus the concept of production is much simplified.

But from the dynamic or realistic standpoint, the concept of production undergoes a transformation similar in general character to that which we have already seen in the case of capital. Discrepancies arise between its various aspects: especially the aspect of private gain, that of technical production, and that of social creation of utilities. Private gains are to be secured by the adjustment of prices in bargains, by the modification of desires and the guidance of choice through salesmanship and

other methods, by the limitation of output to maintain price, and by the adjustment of rights through litigation and through the more fundamental process of modifying the rights themselves by statutes or court decisions which make new law.

Thus all these things are productive from the purely private standpoint, though the gains of some individuals must usually be weighed against the losses of others. These activities are also essential contributing factors in the process of technical production and of social creation of utilities; performing certain essential functions; though they are not the only possible agencies by which these functions can possibly be performed: merely the agencies to which these functions are entrusted under the present economic system. They are thus productive as a whole, in all the main senses of the term; but particular acts may still be purely parasitic, increasing the gains of one person wholly at the expense of others. They involve conflicts of interest, in which the gain or loss of any one party cannot be taken as a gauge of the resultant gain or loss to the community.

These conflicts of interests are unavoidable, and any system of settling them inevitably involves "wastes" of some sort, and the defeating of certain interests that others may prevail. Thus the mere existence of "wastes" in the present system does not necessarily carry condemnation, any more than the fact that the present system of handling these conflicts performs a necessary productive function carries necessarily a verdict of approval. A discriminating study of the facts should furnish the scientific basis on which efforts at improvement may be based, but parasitic activities can at best be minimized, and never totally eliminated. These are some of the difficulties necessarily faced by the dynamic concept of production.

14. *Conclusion*

From the foregoing it appears that there are many factors in dynamics which involve qualititive or "chemical" changes in the static assumptions, and require new inductions to establish their effects. Does the change to dynamics, then, mean the disappearance of statics as such in the pursuit of a study of a wholly different type? This is a question which will ultimately be answered by the test of experience. Dynamic study must not

be cast in static molds: so much is clear at the start. In dealing with questions of utility, sacrifice and efficiency, it will necessarily view society as an organic whole, rather than a mechanical summation of the results of theoretical acts of independent "free exchange." It will leave room for moral forces and its ideals of value and efficiency will be dynamic and not static. In all this its general point of view will be essentially similar to that exhibited in the *Philosophy of Wealth:* a study which contains many elements of a true economic dynamics, and stakes out territory which dynamic theory has not yet been able effectively to occupy. But to say in advance that such a study can have no use for the static method of approach or for static pictures as partial representations of reality: this would be premature. In fact, it seems possible to predict that certain elements of statics will find a place, and probably a permanent one, in the actual pursuit of the dynamic analysis.

In the first place, the dynamic picture will never, in the nature of the case, be complete. The facts change so rapidly that induction can never hope to catch up, and they are so multitudinous that a complete picture would not only be unattainable, but would hardly help the human mind to grasp the facts, since it would be as complex as the facts themselves. Interpretation means simplification, and economics must always simplify in order to be of any use as a mediating agent between the human mind and the facts with which it deals. One effect of the dynamic approach will be to limit statics again largely to its original problem: that of the forces governing the levels of prices and the shares in distribution. And in this field, the static picture will for a long time, if not permanently, afford an indispensable point of departure, and inductive studies will reveal the effect of the static forces, combined with others suggested by the dynamic point of view.

In the realm of price theory, quantitative modifications of the static hypotheses will produce quantitative allowances from the static results, and these will probably always be of use. An interesting example is found in the recent work of Professor H. L. Moore; in which he develops the concepts of partial elasticity of demand, and of a moving equilibrium of economic forces, putting the theories of demand and supply, and the marginal productivity theory of distribution into forms permitting of inductive verifica-

tion.[1] Such verification will, of course, always reveal the presence of other forces than the purely static ones, modifying the results in any given case. Inductive studies will deal, not only with the trend-values around which actual values fluctuate, but also with the forces setting limits on their oscillations. Here the static forces, corresponding to the force of gravity in mechanics, are at work, but under conditions which differ from the complete static picture, and require correspondingly different methods of study.

And finally, in the inductive study of actual conditions, there will always arise the difficulty that a mere description of facts does not afford an explanation or interpretation of them. The question will still remain why they behave as they do. And here again the static approach will prove useful and effective, chiefly in the form of inverse deduction, which has already been mentioned. The reasoning takes the following form. If the facts were found to behave in certain simple ways, we should infer the presence of static forces only, acting under static conditions only. Since the facts behave differently, we infer the joint action of static and dynamic forces, and attribute the departures from the static model to the dynamic elements in the situation. And the nature of these departures are, if properly understood, such as we should expect from the nature of the dynamic forces. Thus brief reversions to the static method of isolation will help us to separate out the forces acting under actual conditions, and to make of dynamics an explanation, rather than a mere description of economic behavior.

[1] See "Partial Elasticity of Demand," *Quar. Jour. Econ.*, XL, 393-401, May, 1926; "A Theory of Economic Oscillations," XLI, 1-29, Nov., 1926.

ELASTICITY OF SUPPLY AS A DETERMINANT OF DISTRIBUTION [1]

Paul H. Douglas

1. *The Positive Contributions of the Marginal Theory of Distribution*

The marginal theory of distribution as developed by Professor Clark has made a great contribution to economic theory by extending to labor and capital the classical doctrine of diminishing returns on land. As applied by Ricardo and James Mill,[2] a combined "dose" of fixed proportions of labor and capital was applied to land with the result that while the total output increased, it did not increase in proportion with the rate of increase of "doses." The return specifically attributable to the combined dose was in consequence less than before and the difference between (1) the yield of the combined dose multiplied by the number of doses, and (2) the total product, became rent. But the quantity of capital was not varied independently in relation to either land or labor, nor was the quantity of labor. The relationship between capital and labor was one of fixed technical coefficients and the only variation consisted of the quantity of labor and capital on one side and the quantity of land on the other. Yet out of this simple relationship, the classical law of rent was deduced.

Von Thünen [3] made an approach to a more malleable theory by breaking up the fixed "dose" of James Mill and by varying the quantity of labor which was applied to land. He hinted that the quantity of labor as compared with capital could also be varied but did not work out his own suggestion. This failure to

[1] This paper was received by the Publication Committee on March 23, 1927.—Editor.

The author wishes to acknowledge the invaluable assistance which has been given him by his colleague, Mr. S. W. Wilcox.

[2] *Cf.* James Mill, *Elements of Political Economy* (1824), p. 24; pp. 30-34.

[3] Der Isolierte Staat.

explore the influence of varying the proportions of all the factors upon production and consequently upon distribution retarded the development of the marginal productivity theory for nearly half a century.

It was the great merit of Professor Clark [1] to complete the work which von Thünen began. He conceived of varying the quantity of each factor while holding the others constant and thus altered the amount of labor to a given supply of capital and the amount of capital to a given supply of labor, the supply of land being eliminated by assuming that this variation in the proportion of the factors took place at the margin. He thus brought the yield attributable to each factor under the principle of diminishing returns and the return to each under that of marginal productivity. The addition of successive units of a given factor, the supply of all other factors being constant, resulted in an increase in the total product but to a lesser extent than that resulting from the addition of the previous unit of this same factor.[2] Since all the units of this factor were assumed to be uniform and interchangeable, the loss of any one would only cause the diminution or increase in the total product which resulted from the addition of the last unit. It was this amount which was therefore imputed to all of the units of the factor in question and which fixed therefore the unit return.

Varying the quantities of labor in relation to those of capital thus gave the marginal productivities of labor and the prevailing wage while varying the quantity of capital as compared with that of labor established the marginal productivities of capital and the rate of interest. It should be emphasized that the theory only deals with the expansion or contraction of a unit, or at most of a few units, in the supply of a factor. It does not deal with the withdrawal of the entire supply of a factor. Failure to understand this principle of infinitesimal differences has led to ludicrous misinterpretations. Thus Mallock has urged that by far the major share of the national product should go to management (ability) since if all of this factor were removed, the total product

[1] *The Distribution of Wealth, Essentials of Economic Theory, The Distributive Process, The Philosophy of Wealth.*

[2] Expressed mathematically, the marginal productivity would be $\frac{\partial O}{\partial X} \triangle X$ where O represents the total product or output and X the quantity of the factor.

would be only a small share of what it is now; while still others have reasoned that since without labor, the product would be nil, labor should receive all. Others have said that capital should receive the difference between what would be produced without its services and what is produced and hence should obtain virtually all of the product. If this interpretation of marginal productivity were followed, there would of course be claims (including that of land) upon the national product, of nearly four times the product itself. The truth of the matter is of course that all the factors coöperate in turning out the total product but that their return per unit depends upon the *amount* of change in the total product which the last of their constituent units occasions when all other factors are held constant.

There is a further feature of the marginal theory which needs exploration. Does the sum of the returns of the two factors (*i.e.*, the respective marginal productivities of each multiplied by their number of units) equal the total product minus rent? This has been much disputed. Hobson [1] and Adriance [2] declare that it does not and urge that the output specifically attributed to the last worker was really the result of the coöperation of the total number of workers and the capital equipment. To try to separate the contributions of individuals would be impossible and would lead to double counting. This criticism can be and has been mathematically disproved by the late P. H. Wicksteed [3] and by C. W. Cobb of Amherst College [4] by the application of Euler's law and on the assumption that the total output will increase in the same proportion as equal proportionate increases in the supply of the factors. Where the increase in the total product is not linear however the sum of the amounts attributable under marginal productivity may not be equal to the whole.[5]

The theory of marginal productivity as formulated by Professor Clark measured productivity in terms of physical units. Yet since many commodities are produced, it is clearly necessary

[1] J. A. Hobson, *Economics of Distribution,* p. 147. Hobson, however, has never understood the principle of infinitesimal differences which lies at the base of the theory.

[2] W. M. Adriance, "Specific Productivity," *Quarterly Journal of Economics,* Vol. XXIX, p. 158.

[3] Wicksteed, *A Coördination of the Theories of Production and Distribution,* pp. 1-56.

[4] See J. M. Clark, *The Economics of Overhead Cost,* p. 473.

[5] But see Wicksteed, *The Common Sense of Political Economy,* pp. 358 ff. and 550 ff.

for the purposes of exchange to reduce them to common units of value. Due to the tendency of labor and capital to seek the most profitable lines of employment and the consequent tendency of wages of similar laborers to approach equality and of the interest rate to approach uniformity, the margin of production for both labor and capital runs through all industries and must therefore be measured in terms of value. It is idle to deny that this introduces grave complications into the theory of marginal productivity.

Thus the value of a worker to an employer is measured by the money addition which he makes to the income of the concern rather than in terms of the benefit which he creates for society. Thus the process of reasoning by which the manufacturer of a quack patent medicine decides whether he shall engage another chemist is precisely the same as that by which a dairyman decides whether he shall employ another milkmaid. Each worker will tend to yield less profit to his employer than his predecessor although in one case the profits will come from conveying worthless articles to adults and in the other from producing milk for children. Similarly those who are employed in giving an employer a competitive advantage over his fellows without increasing the national product as such all come under the principle of marginal productivity as do those who may actually decrease the total product in which they share.[1]

Yet even this dilemna may be mitigated if we measure the output of industry in the form of a composite of physical goods and of services as has been attempted in the various indexes of production compiled by Day, Stewart and others. Granted that there are parasitical elements within each volume of output, it will be enough if we assume that the *proportion* of parasitism remains the same, and consider the change in the product as a whole which accompanies changes in the quantity of the factors. And if it be objected that it is impossible to construct such an index of production because the values of commodities change from year to year, it can be pointed out that the problem has been virtually solved by Professor Irving Fisher's "ideal" index number whereby the weighted geometric mean of the ratios of value in the base year and in succeeding years may be secured.[2]

[1] See Thorstein Veblen's paper, "Industrial and Pecuniary Employments," reprinted in *The Place of Science in Modern Civilization*.

[2] Fisher, *The Making of Index Numbers*.

2. *The Place of Supply Curves of the Factors in a Complete Theory of Distribution*

Perhaps the most serious inadequacy in the marginal theory of distribution is however in its treatment of the supply of the factors. Professor Clark assumes given supplies of labor and capital and then measures the addition to the total product which accompanies the last unit of each. But he does not go into the question as to how the factors happen to be combined in the proportions which they are. Instead, he assumes that there is a certain supply of capital which for the purpose of illustration he takes [1] as "a hundred million dollars worth." Then he adds successive increments of labor, each amounting to one thousand workers and points out that the total product will not increase in proportion to the increase in the quantity of labor.[2] A similar process is applied in the case of capital, the supply of labor being held constant and the supply of capital increased. In this analysis, capital and labor are purely passive factors. They may be expanded or contracted at the will of the manipulator, who, like a prestidigitator, can produce more of a factor out of his hat. Böhm-Bawerk, in one of his replies to Professor Clark, complained that the latter had treated capital as though it had dropped from heaven. The supply of labor is certainly treated with equal freedom. But clearly the marginal productivities of labor and capital will be different under different conditions of supply. If 42 million laborers are set to work with 100 billion of dollars worth of capital, then the marginal productivity of labor would be higher and that of capital would be lower than if it were 84 million workers who were at work with 50 billions of capital. Is then the relative supply of each factor which is offered purely a matter of caprice which is unaffected by economic conditions or by the price which is paid for it? If the marginal productivity per unit of labor were to be so high that labor received three times as much as its present return, might this not alter the supply of labor which would be forthcoming and hence effect a change in its marginal productivity? Similarly, if the

[1] J. B. Clark, *The Distribution of Wealth,* pp. 165-66.

[2] Or in mathematical language $\frac{\frac{dO}{O}}{\frac{dx}{x}} < 1; \frac{d^2O}{dX^2} < 0$

rate of interest were to be one-half of its present figure, can we assume that the supply of capital would be the same? If the change in the remuneration of labor and capital altered the supplies of these two factors, then would not their marginal productivities also be altered? Furthermore, the marginal productivities in the original situation may well have been such as to cause either more or less of a given factor to be supplied and this very alteration in the quantity offered would alter the marginal productivities.

The truth of the matter is that the theory of marginal productivity as advanced by Professor Clark explains the processes of distribution under the condition of fixed supplies and of atomistic competition. It does not fully explain the permanent long-run processes of distribution nor tell us whether the prices of the factors at any one moment are such as to constitute an equilibrium or whether they are not. Fundamentally therefore the contribution of Professor Clark to the theory of distribution was very similar to that of the Austrian school to the theory of value. To both the prices, of goods in the one case and of factors in the other, were fixed by demand schedules; the units of desire expressed and weighted by monetary units constituting the demand curve for commodities and the curves of imputed marginal productivity constituting the demand schedules for labor and capital respectively.

But in real life, and for the purposes of a complete theory, we also need to know what determines the supply since this is also an essential factor in price determination. The supply of a commodity is not a purely plastic affair in which any quantity will be offered irrespective of price. It is on the contrary a function of price just as is demand. But since it is the factors of production, *i.e.*, labor, land, capital and management which produce commodities, the prices paid for the latter are really analyzable into prices for the factors. The supplies of the factors can in a similar sense be conceived of as functions of price or of return. The fixation of the equilibrium in a simplified economic state and the unit return to each factor will therefore depend not only on (1) the curve of imputed productivity of Factor X when Y is constant and (2) the curve of imputed productivity of Factor Y when X is constant but also (3) the curve of the advance in total productivity when X and Y are increased proportionately (4)

the supply curve of Factor X, *i.e.*, at given prices or returns the amount of X which will be offered and (5) the supply curve of Y. The final equilibrium will result from the interaction of all these forces. To construct a valid theory of distribution, we must then build on marginal productivity (and for that economics will be forever grateful to Professor Clark); but we must build out beyond it to determine the effects of varying sets of supply schedules. Ultimately indeed economists should set themselves the task of determining inductively the actual supply schedules of the factors and if possible of their productivities as well. As will be intimated later on, this is by no means the hopeless task that most economists have feared it to be.

3. *The Conscious or Unconscious Use of Supply Schedules in Economic Theory*

It is the purpose of this paper to draw out some of the theoretical consequences in the process of distribution which result from differing sets of elasticities of supply of the factors of production and to indicate some of the lines of inductive investigation which should be followed if we are to determine them quantitatively. Before proceeding to this analysis however, it may be worth while to point out that in practice virtually every theory of distribution which has aimed to explain the long-run tendencies has in fact rested its case upon some assumptions of the probable behavior of the supply of the factors consequent upon changes in their rate of remuneration.

Thus the mercantilists believed that the real wages of the workers should be lowered and not increased. This followed from their belief that an increase in wages would cause a corresponding decrease in the number of hours the laborers would work since the latter would now be able to secure the same standard of living with fewer hours of work. A decrease in real wages would therefore cause the workers to put in more hours of work in order to maintain their former position.[1] Thus the public policy advocated by this group proceeded from their belief that the supply curve of labor was negatively elastic and that this elasticity was equal to unity.

[1] For a review of mercantilistic doctrine on this point, see E. S. Furniss, *The Position of the Laborer in a System of Nationalism*, and an article by T. E. Gregory in Volume I, of *Economica*.

The long-time theory of distribution which was held by the classical school from Ricardo on was also fundamentally based on a concept of supply curves. Thus if wages rose above the minimum, which furnished at any one time the basis of subsistence or the standard of living but which was for long periods constant, then this would call into being the forces of Malthusianism. Births would increase, deaths would decrease, population and ultimately the number of workers would expand and this would cause wages to fall back to their former level. This tendency was supposed to be reinforced by the change in the supply of capital. If without any change in the total product, wages increased at the expense of the rate of interest, this would cause a decrease in the rate and would lead to a curtailment in saving. This fear was particularly marked in the orthodox followers of Ricardo who felt that the rate of profits was already within a hand's breadth of *the* minimum, and that if they were to fall much lower, virtually all of the capital would cease to be saved. This great decrease in the supply of capital would of course mean an equal contraction in the fund from which wages were paid and consequently would cause the rate of wages to fall greatly. Thus behind the writings of Senior, Mill, and Cairnes there is the belief in the almost infinite elasticity of the supply of labor, and of at least an equal shrinkability in the supply of capital.

Similarly, those who like Sidney and Beatrice Webb believe that it is relative bargaining strength alone, or force and craft, which determines what each factor shall receive, tend either explicitly or implicitly to assume that the supplies of the factors are almost completely inelastic and will be the same irrespective of the price which they receive. Thus the Webbs reason that if through trade-union organization wages should increase and the rate of interest fall, the supply of capital would not decrease. To support this contention, they accept for certain classes the doctrine advanced by Sargent [1] that a fall in the rate of interest would cause an increase in the amount saved. Sargent had argued that the lower the rate the more men must save in order to secure the same annuity, and the Webbs declared that this would offset the tendency of other classes, such as the wealthy, to save less. But the Webbs held that not only would there probably be no diminution in the amount of capital but that there

[1] W. L. Sargent, *Recent Political Economy.*

would also be little or no increase in the supply of labor price. The increased wage would lead to a higher standard of living and hence to a decrease in the birth-rate. This being so, the workers could improve their position at the expense of the capitalists and relative bargaining strength alone determined the amounts which each would secure. Other bargain theorists, such as Davidson,[1] Ira Steward, George Gunton,[2] and others either made similar assumption or blithely took for granted that the supplies would not be altered. The modern residual theories of distribution, notably those of Taussig and Kleene, postulate almost infinitely elastic supply curves of one factor but tend to regard the supply of the other as unconnected with the return to it. Thus to Taussig [3] the joint product of labor and of capital has deducted from it *the* rate of interest, with the result that the residual goes to labor. This rate of interest Taussig imagines has been historically steady through time, although as a matter of fact it seems to have varied greatly from decade to decade, and this to him seems to be proof that there is a "broad margin of savings." If the rate of interest rises through technical progress or from some other cause, there will be such an outpouring of savings as will bring the rate back to the point where the broad margin is located. If the rate of interest should fall, then the supply of capital would fall off so greatly that its relative scarcity would cause its price to rise again and ultimately find its way back to its original figure. There is thus *an* "effective rate of accumulation" and the joint product is discounted at an approximately constant rate, with the residue going in wages.

Kleene [4] has a somewhat similar theory, although with him the rate of wages is the constant and not the rate of interest. He rejects the broad margin of savings but postulates a broad margin of population growth in the non-capitalistic areas of the world where he believes the principle of Malthusianism still holds. Through migration within and emigration from these countries, this rate of procreation establishes the wages of unskilled labor in capitalistic countries and upon these in turn, with appropriate differentials, the rates for skilled labor are based. An increase

[1] John Davidson, *The Bargain Theory of Wages.*
[2] Gunton, *Wealth and Progress.*
[3] F. W. Taussig, "Outlines of a Theory of Wages," *Publications of the American Economic Association,* 3rd series (1910), Vol. II, pp. 136-50; *Principles of Economics,* Vol. II.
[4] G. A. Kleene, *Profits and Wages.*

in wages will stimulate a further flow of such labor and this lessened pressure upon natural resources in the backward areas will give rise to a further increase in population and hence to a filling of the reservoirs upon which the industrialized sections may draw.

There are several extraordinary features in such theories as those advanced by Taussig and Kleene. Not the least is the fact that Taussig, who has been such an unsparing critic of the residual theory of wages of General Francis A. Walker should nevertheless have constructed a very similar explanation as his own. Furthermore, the tendency of both to regard the supply of the other factor, in Taussig's case labor and in Kleene's case capital, as not being related to the price it receives is crucially defective. Finally, the curious belief of both that the supply curve of a factor does not have any influence on the processes of distribution unless it is virtually parallel to the base (*i.e.*, of almost infinite elasticity) and that if there is no such supply curve bargaining strength alone determines what the final result will be, is a serious misapprehension of the economic process. The economic process is in fact one in which equilibrium is attained through the interactions of various forces—of supply curves as well as of total and marginal products. As we shall see, supply curves of whatever description affect the result, and do not by any means need to be of infinite elasticity.

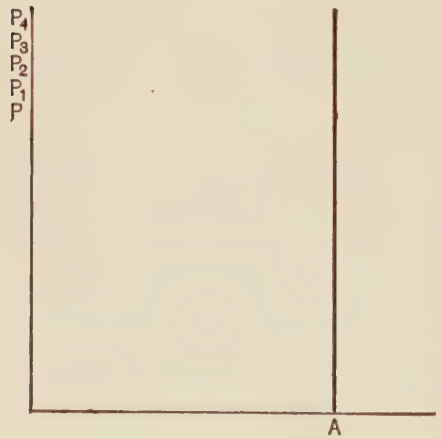


FIG. 1

4. *Various Types of Supply Curves and the Meaning of Elasticity of Supply*

We shall secure a clearer concept of the influence of the forces of supply if we first examine the various types of supply curves that may conceivably operate and explore the meaning of relative elasticity. An absolutely inelastic supply, which tends to

be that postulated by the bargain theorists is represented in Figure 1; namely, a straight line perpendicular to the base and parallel to the price axis. Here the supply will be the same, irrespective of whether the price is P, P_1, P_2, etc.

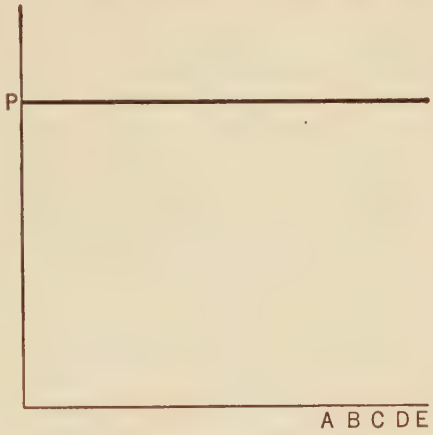


Fig. 2

Figure 2 represents a supply curve of infinite elasticity which was posulated by the Malthusians for labor and by the later members of the classical school for capital. This, with some modifications,[1] represents Taussig's concept of the supply curve for capital. A virtually unlimited number of the units of a given factor will be produced at the return P. It is thus identical with production under constant cost. If the rate of return rises above P, the supply will expand almost indefinitely until the increase of that factor may bring the return to this factor back to its original point P. Similarly, if the return should fall below P, then the supply would dwindle away to almost nothing, being checked only by the fact that so rapid a decrease would cause its unit return to rise and when it had reached P, the contraction would cease.

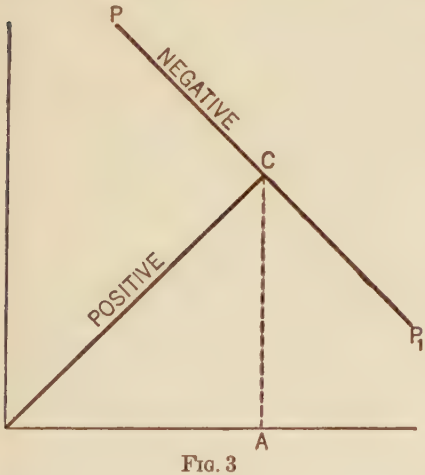


Fig. 3

We should also note the difference between positive and negative supply curves which are shown in Figure 3. With a posi-

[1] Taussig's assumed curve permits of a fraction of the total supply being saved at less than the broad margin.

tive supply curve an increase in price is accompanied by an increase in the quantity supplied and a reduction in price is accompanied by a decrease in the quantity supplied. The negative supply curve PP_1, on the other hand, represents a supply schedule where the higher the price the less is supplied and where with a reduction in price more is offered.[1]

Elasticity of supply is the *relative* change in quantity supplied which accompanies a *relative* change in price. Virtually the same formula which Marshall [2] used to measure the elasticity of demand can be applied to measure the elasticity of supply. We may then write this formula:

$$E = -\frac{\frac{dX}{X}}{\frac{dP}{P}}$$

Where E=elasticity of supply
X=quantity of factor (or commodity) offered
P=price per unit
d=the symbol to designate a differential, in this case an infinitesimal difference in X or P. While both dX and dP approach zero as a limit, the ratio $\frac{dX}{dP}$ is in general not equal to zero. In the examples immediately following it has been assumed that a change of one per cent may be considered to represent an infinitesimal change with sufficient accuracy for the purpose in hand.

If we may be pardoned then an example based on finite differences let us assume that in a given economy the price of labor

[1] This manuscript was printed while Professor Douglas was in Russia. At the time that the undersigned was asked to see it through the press it had been advanced to the galley stage with all the plates of the figures made. Certain corrections that otherwise would have been made must be left to the indulgence of the reader.

Wherever (as in Figure 3) supply curves are shown as straight lines and yet as having constant elasticities other than 0, +1 or ∞ it follows that the figure is on a double logarithmic scale. The part of the plate that looks like a zero origin with axes running through it must not be so interpreted.

In all the plates having two supply curves the intitial state of equilibrium should be represented by two points instead of one.—S. W. W.

[2] Marshall, *Principles of Economics* (6th edit.), p. 839. Marshall's formula for the elasticity of a demand curve has a negative sign.

increases from 50.0 to 50.5 units per hour and the number of man hours offered from 1000 to 1010, then

$$\frac{\frac{1010-1000}{1000}}{\frac{50.5-50.0}{50.0}} = \frac{\frac{10}{1000}}{\frac{.5}{50.0}} = \frac{\frac{1}{100}}{\frac{1}{100}} = 1$$

This then is unit elasticity where a change of one percent in price is accompanied by a change of one percent of quantity offered. If the quantity decreased by one percent as the price increased by one percent, it would be unit negative elasticity.

If however the number of man hours were only to increase to 1005, then the elasticity would be

$$\frac{\frac{5}{1000}}{\frac{.5}{50.0}} = \frac{\frac{.5}{100.0}}{\frac{1}{100}} = .5$$

while if the supply of labor increased to 1020, then

$$\frac{\frac{20}{1000}}{\frac{.5}{50.0}} = \frac{\frac{2}{100}}{\frac{1}{100}} = 2.$$

There is indeed but one important difference between the measurement of supply schedules and those of demand. By far the major portion of all demand schedules are negatively inclined.[1] Unit elasticity here is identical with a constant outlay, the change in price being commensurate with an opposite change in quantity demanded so that the total price area is constant. In the case of elasticities greater than unity, an increase in price causes a lesser price area while a decreased price leads to a greater outlay. The reverse situation holds when the elasticities are less than unity. These relations hold in the case of negative supply

[1] Most economists reason as though all demand curves must be negatively inclined, but this is not necessarily so.

schedules, but in the case of positive supply curves an increase in price will always mean a greater and a decreased price a lesser total outlay upon the commodity or factor in question. Thus in the case of an increase not only will each of the units formerly supplied receive more than before, but the new units which have presented themselves will each receive the old price plus the increase which has occurred.

It should be realized however that the formula given above is only adapted for measuring the elasticity of demand where the changes in quantities are infinitesimal. It does not meet the situation where finite changes occur. Thus if an increase in price from 50 cents to $1.00 per hour causes an increase in the quantity of labor offered of from 1000 to 1600 hours, then the coefficient of elasticity would seem to be

$$\frac{\frac{600}{1000}}{\frac{50}{50}} = \frac{600 \times 50}{1000 \times 50} = \frac{30000}{50000} = .6$$

But if we reckon the elasticity from $1.00 backwards, then

$$\frac{\frac{-600}{1600}}{\frac{-50}{100}} = \frac{600 \times 100}{1600 \times 50} = \frac{60{,}000}{80{,}000} = .75$$

We secure then two differing coefficients depending upon whether we compute in terms of increases or decreases, although the absolute changes are of course the same. Our formula in other words does not meet the reversal test. The Marshallian formula therefore does measure elasticity at a given point, but as Dalton has pointed out,[1] it does not measure in itself arc elasticity, or the elasticity between two points.

By using the midpoint as the point of reference we can secure an approximation that meets the reversal test though at the cost of not necessarily having our point of reference lie on the curve, thus:

[1] Hugh Dalton, *The Inequality of Incomes*, pp. 192-97.

$$\frac{\frac{X_2-X_1}{\frac{1}{2}(X_2+X_1)}}{\frac{P_2-P_1}{\frac{1}{2}(P_2+P_1)}} = \frac{\frac{\Delta X}{\overline{X}}}{\frac{\Delta P}{\overline{P}}} = \frac{\overline{P}\,\Delta X}{\overline{X}\,\Delta P}$$

In Figure 4, there are shown on a double logarithmic scale three supply curves of .5, 1.0, and 2.0 elasticities respectively. All assume constant elasticity throughout and on the logarithmic scale all are straight lines. Starting all the curves at a common point of intersection which we may take as 1, the curve of unit elasticity bisects the angle at the base at 45°, while where the elasticities are .5 and 2.0, the angle is cut at 67½° and 22½° respectively.

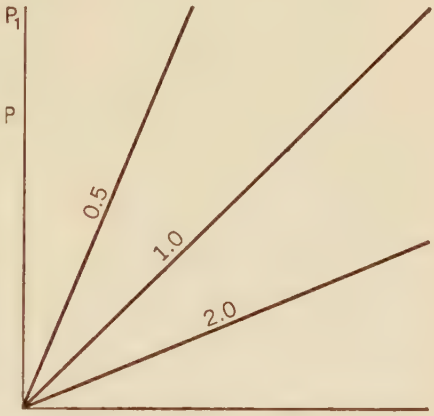


FIG. 4

It is of course true that virtually all supply as well as demand curves are not characterized by uniform elasticity throughout but exhibit varying degrees of elasticity during their course. The supply of a factor may for example be relatively elastic for a considerable period and may then take a sharper pitch and become relatively inelastic. To simplify the discussion of the relative effects of differing elasticities of supply, however, we shall assume in the following discussion that the given elasticities apply throughout the supply schedules of any one factor. What is found to apply to the curve as a whole will, of course, apply to the movement around any one point where the elasticity is the same.

One other final distinction should be made clear. The supply of a factor will depend not only on its elasticity but on its position. Figure 5 shows two supply curves each of which has unit elasticity, but where different quantities are supplied at the same price because of the fact that their coefficients are different.

A factor may retain the same elasticity but by a fractional movement of its supply schedule to the left it will supply at the same price less than before.

We may now proceed to come to closer grips with the problem. Assuming that we are dealing only with one commodity and with two factors, we shall try to determine what the effects of various elasticities of supply of the factors will be under the three following sets of changes:

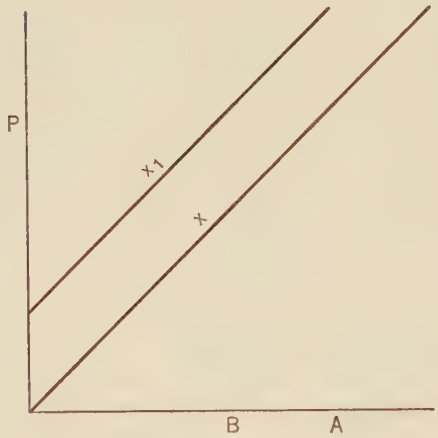


FIG. 5

1. An increase in the effectiveness of industry. This might be caused by an improvement of technical processes, by inventions, or by a gain in the exchange rate of the commodity produced in this community as compared with those produced in other communities.

2. A decrease in the effectiveness of industry. This in turn might result from a war, from a loss in social vitality or by a decrease in the exchange ratio between this and other communities.

3. A change in the bargaining powers of the factors. A fuller discussion as to what constitutes bargaining power will be given in a later section, but here it is enough to define such a change as occurring when one factor improves its relative strength in this regard over its former status.

5. *Elasticities of Supply in Relation to Increases in the Effectiveness of Industry*

Let us assume that without any initial change in the quantities of the factors the effectiveness of industry increases by let us say, one-third. What then is the effect which this has, under varying elasticities, upon (1) quantities of factors offered, (2) the return per unit of each factor and (3) the proportion of the total product received?

We may begin with a situation where the supplies of both factors are absolutely inelastic, as in Figure 6. The increase in output will of course cause the return to each to rise from P to P_1, but this will not lead to any change in supply, since the same amount will be offered whatever may chance to be the price. There will, therefore, not be any readjustment in marginal productivities and the situation will remain as it was immediately after the increase in output took place and the return to each factor increased by PP_1.

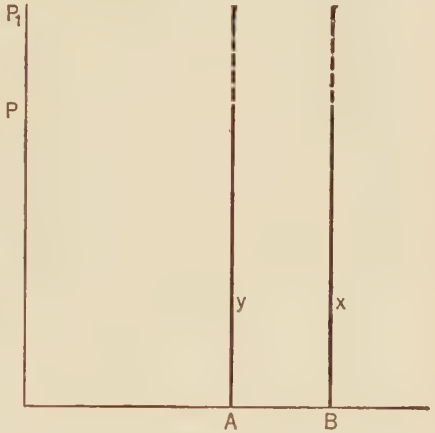


Fig. 6

Let us assume for a second illustration that both Taussig and Kleene are correct and that the supply curves of both factors are infinitely elastic as is represented in Figure 7. Then an increase in total output and in return to both factors X and Y would cause a great expansion of each along its respective supply curve. It might seem as though there would be an unlimited expansion of the quantities of X and Y since their respective rates of remuneration would be higher than the amounts P_1 and P at which almost infinite amounts of the factors would be produced and offered. But in real life there would be obstacles which would prevent this from happening. In the first place, the third factor, land, would not

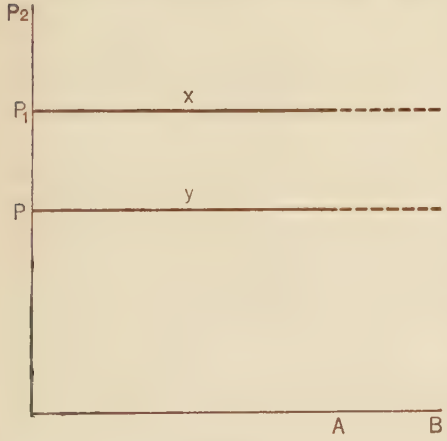


Fig. 7

tend to increase in any such ratio and if its supply remained constant, then the produce jointly attributable to labor and capital would decrease. Within this joint product, the relative productivity of these two factors would be the same but their absolute shares would shrink and this would bring the unit return for each down toward the P_1 and P points which originally prevailed.

Secondly, it is of course virtually inconceivable that the supply curves of two factors or even of one would be thus infinitely elastic. The natural forces of resistance to labor and to saving would tend to cause them to turn upward after a time. And when this happened the approach to an equilibrium would be hastened. Irrespective of changes in marginal productivity, the upward movement of the supply curves would at some time intercept the new returns. This would be hastened, of course, by the failure of a third factor to expand commensurately and would be complicated, as we shall see, if the upward tilt of the supply curve of either X or Y began earlier or sloped more sharply than that of the other factor.

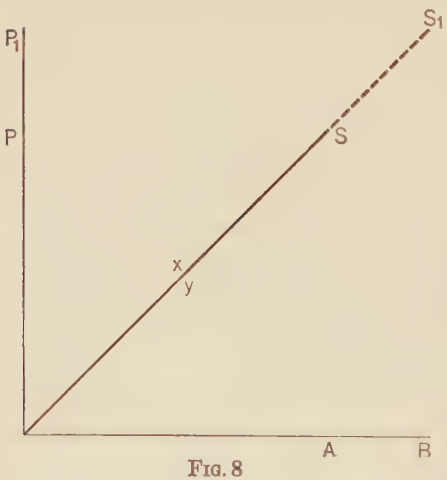


FIG. 8

A third illustration which may be chosen is that where both elasticities are equal. In Figure 8, both X and Y are given unit positive elasticity and are given a common point of origin. They are both therefore represented by the curve of S in which the quantity A is offered for the return P.

A word should be added here concerning the scale on which quantities of two differing factors are drawn, since it may well be asked how it is possible to represent hours of labor and physical units of capital upon the same scale. The author makes no effort to prove, as Cairnes sought to do, that both factors can be reduced to common and commensurate units of disutility, for each

of which the same money price is paid. For each factor there can be chosen arbitrary units which will bring it on the scale. The scales represent the relative rates of increase in the supplies of the two factors. A given distance represents equal rates of change in their respective supplies or equal rates of change in that which is paid. It is therefore a double logarithmic scale which we are using.

Returning to the situation illustrated in Figure 7, it is apparent that an increase in the effectiveness of industry and the rise in the payment to both X and Y from P to P_1 would cause a proportional increase in the quantity of each. But since both factors would increase at the same rate, the proportions between X and Y would tend to be unaltered and hence their relative marginal productivities would be changed if at all from conditions affecting the productivity curve, not the supply curves. When the elasticities of supply are equal, the two factors tend to share equally, in terms of both unit and proportional returns, in the gains resulting from an increased effectiveness of industry.

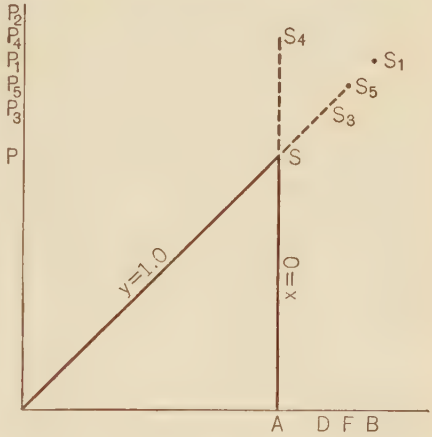


FIG. 9

We turn now to a slightly more complicated and more interesting case, namely that where the supply of the factor X is completely inelastic and that of the other Y has positive unit elasticity. This may be represented by Figure 9 where the line A S represents the inelastic factor X and that of SS_1 the factor Y with an elasticity of 1.0. The supplies of both when in an original state of equilibrium are represented by A and the price paid to each by P. The initial increase in the rate of remuneration to each from P to P_1 will create a difference in the relative supplies of the factors. That of X will not increase at all since it is by hypothesis absolutely inelastic, but that of Y will tend to expand at a ratio equal to the relative increase in return per unit.

If no obstacles intervened it would increase by the proportion A B, which in this case of unit elasticity would bear the same relation to A as PP_1 to P. But since the supply of Y had increased and that of X had remained constant, the marginal productivity of X would certainly be greater in terms of Y than it would have been had their elasticities been equal. The unit return to X would therefore rise *above* P_1, to, let us say, P_2. The marginal productivity of Y, on the other hand, would have fallen because there would be relatively more of it mixed with each unit of X than before. Its return per unit would therefore *fall* below P_1 to, let us say, P_3. But this very decrease in the marginal productivity of Y would in turn dampen off the rate of growth of the curve and would cause less than B to be produced and would lessen the rate of increase in the unit return to X and bring it down below P_2.

But how far would this process of readjustment go? It would not be sufficient to bring the return to X back to P_1 or of Y to P_1 since Y would certainly show some increase in its total quantity, and *any* increase in unit return over O P would call forth a proportionate increase in the quantity supplied of Y while the supply of X would not increase. There would, therefore, be a permanent increase in the quantity of Y offered over the supply A and hence an increase in the relative marginal productivity of X in terms of Y. The return per unit of X would rise above P_1 while that of Y would fall below P_1. X would not rise to P_2 however, because of the dampening off of Y's rate of growth, and would settle, let us say, at P_4. The return to Y in turn would not be equal to P_1 but would, instead, be something less than this amount but more than P_3 and would be fixed at P_5. The ultimate result will, therefore, be that X will secure a greater proportionate return per unit than the increase in the total effectiveness of industry, while Y will secure a lesser unit increase.

It is not conclusively demonstrable by graphic methods alone whether X as a whole will secure a larger share of the total product than before, or whether the greater number of units of Y which have been supplied will be more than sufficient to offset the lesser increase per unit. From mathematical illustrations, which have been worked out by my associate, Mr. S. W. Wilcox, however, it is apparent that under the assump-

tions which we have made, the total share of X would gain relatively to that of Y. Other assumptions led to fixed relative shares.

We may now proceed to a slightly more complicated case, namely, that where both factors have positive but differing elasticities, which we may represent in Figure 10 as X with .5 and Y with 1.0. We have represented them in the original state of equilibrium as having the supply A and the price P. The increase in the total effectiveness of industry which raises the initial payment to each to P_1, calls forth an increase in the supply of both, but Y will expand at twice the rate of X and in consequence the marginal productivity of X will rise above and that of Y will fall below P_1, but not by as much as when the elasticity of X was 0. But this further rise in the return to X will cause its supply to expand beyond B and the fall in the return to Y will cause its supply to contract from C. There will thus be a double force operating to lower the marginal productivity of X down towards P_1 and to raise that of Y up again towards P_1. It will be stronger than in the case previously chosen, since the quantity of X will now be expanding as well as that of Y shrinking. The final equilibrium will, therefore, be nearer P_1. For it should be remembered that both would certainly receive more than P and that every percent increase in price above this point will cause the supply of Y to expand twice as rapidly as that of X, and hence will increase the marginal productivity of X above the point which it would otherwise have reached, and will cause a diminution in the marginal productivity of Y. Since the total expansion of the productive powers of industry are such as could cause an increase in output to F_1, were both elasticities equal to unity, and yet would permit both to enjoy the

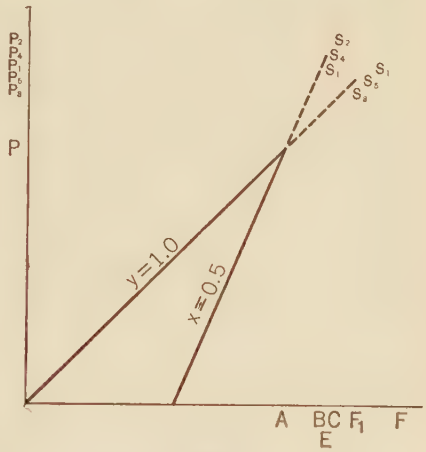


FIG. 10

increase of $P P_1$ in return per unit. When the elasticity of X is less than unity of .50, then its unit rate of return tends to be somewhat above P_1 and that of Y will be somewhat below. X will still have gained but not as much as when its elasticity was 0 and that of Y was still 1.0.

The computations which have been made by Mr. Wilcox indicate, moreover, that for the productivity surface assumed [1] X now has a slightly larger share of the joint product than before the increase in the effectiveness of industry took place.

If we follow out other illustrations of varying elasticities it will be seen that X's gain at zero elasticity will be greater if Y has an elasticity of 2.0 than if it has 1.0, for Y in the former case will increase twice as rapidly as in the latter, and hence the original proportions between X and Y will be more disturbed and the marginal productivity of X still further enhanced. Similarly, although X will gain less when its elasticity is .5 rather than 0, while that of Y is 1.0, it will plainly gain more if Y's elasticity is 4.0, than if it is 1.0.

The conclusion then is clear, that when we are dealing with positive elasticities the factor with the least elastic supply gains most from an expansion in production, and that it gains the more, the more elastic is it rival factor. In the case of the particular productivity surface noted above it seems also to be true that this holds for relative shares of the total product as well as for payment per unit.

The problems which arise out of negatively sloping supply curves are, however, still more fascinating. Thus, let us assume a situation where we have one positive and one negative supply curve, but where the elasticities themselves are equal as is represented in Figure 11, where unit elasticity characterizes both X and Y. The relative supply of both X and Y in the original equilibrium is represented by A and the relative price paid to each by P. Then an increase in the effectiveness of industry would initially raise the return to each above P to, let us say, P_1. But this, in the sequence now familiar, would cause the supply of X (since it is negatively elastic) to contract to B, while that of Y would increase by an equal amount. Since the supplies of the two factors would thus move in opposite directions, the

[1] $Z = \frac{KX^{1+\alpha}Y^{1-\alpha}}{\sqrt{X^2 + Y^2}}$, where Z is the total product.

marginal productivity of X would rise greatly above the amount P_1 while that of Y would fall. But while this rise in the marginal productivity of X to, let us say, P_2 would cause a still further contraction in the supply of X, the fall in the productivity of Y would cause an equal decrease in its quantity. The differences in marginal productivity would not, therefore, be further accentuated from what they were as the result of the initial change in quantities arising from the expansion of production. An equilibrium would result in which the return to X would be greater than P_1 and that of Y would be less; and the amount of the differences of the return of X and Y from P_1 would be greater than in Figure 9, where we assumed elasticities of 0 and 1.0 respectively.

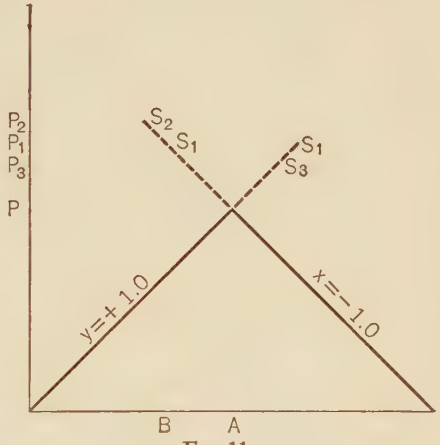


Fig. 11

What would happen, however, were the negative elasticity of X to be greater than the positive elasticity, namely —1.0 as compared with +.5 as is illustrated in Figure 12. Then the initial increase in effectiveness and in unit return to each would cause the supply of X to decrease twice as fast relatively as that of Y increased. Its marginal productivity would consequently rise and that of Y would fall, but this would lead to twice as great a relative decrease in the quantity of X as it would in that

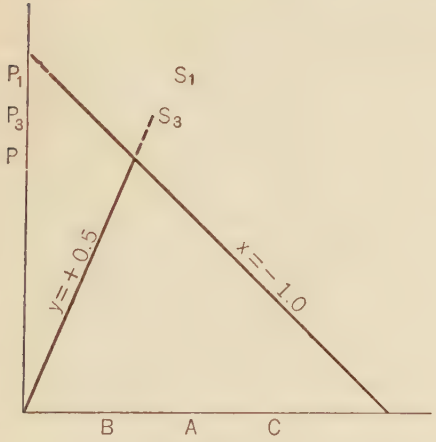


Fig. 12

of Y, so that its marginal productivity would rise still further and that of Y would decline yet more. This in turn would stimulate X to decrease at twice the rate of Y and would lead to another increase in X's marginal productivity. There would thus be a cumulative process. Here as in all these cases the point of equilibrium would depend on the type of productivity equation assumed. Its partial derivatives furnish the demand curves for the factors which must be thought of as equations to be solved simultaneously with the supply curves under discussion.

When, however, the negative elasticities are less than the positive elasticities, as in Figure 13 with X as —.5 and Y as +1.0, then though the initial increase to both would cause the supply of X to contract and that of Y to expand, there would not be the same after effect. In the first place, there would not be the same relative differences in the supplies of the factors created as would have been the case had X's elasticity been —1.0 rather than —.5. Secondly, the supply of Y would now decrease from the amount B at twice the rate at which that of X would increase from C. Hence, there would be something of a readjustment of marginal productivities, with Y rising from the lowly station to which the movement in opposite directions had consigned it while that of X would be lowered from its high estate. The final equilibrium (*i.e.*, P_3 for Y and P_4 for X) then would be one which would be distinctly more favorable to Y than when the elasticities were plus and minus 1.0 respectively.

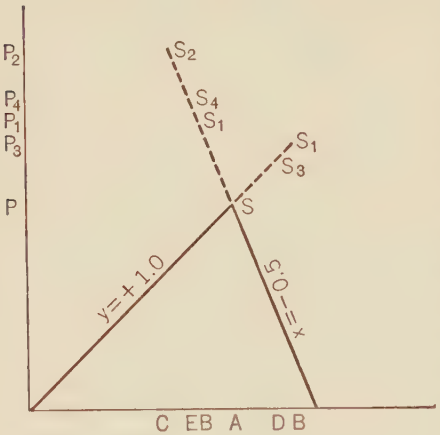


FIG. 13

Finally, what is the situation when both supply curves are negative? If they are equal, then an advance in the return paid to each unit, will cause equal proportionate reductions in the quantity offered and hence will not throw the relative marginal productivities of the two factors out of line with each

other. If, however, they are of different elasticities, namely of —.5 and —1.0, as in Figure 14, then the initial advance in the return per unit will of course cause a greater relative contraction in the supply of X than in that of Y. The marginal productivity of X will therefore rise relatively to Y, but this rise in X will lead to a still further contraction in the quantity of X to amounts less than B. The decrease in the marginal productivity of Y from P_1 will cause an expansion of the number of units beyond C. This, however, will be a movement in opposite directions, with the result that the marginal productivities of X will be still further enhanced and those of Y still further depressed. But this will cause still less X to present itself and still more Y to be supplied, so that the process would almost seem to go on cumulatively with every indication of unstable equilibrium.

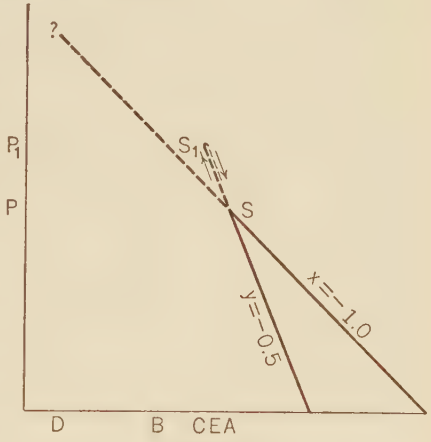


FIG. 14

Since this description in terms of successive processes has been for purely pedagogical purposes, while in actuality all of the forces would be operating simultaneously, the increase in the net effectiveness of industry would be a force serving to offset the diminished marginal productivity and hence preventing the supply of Y from expanding continuously with the cumulative breakdown of equilibrium which has been sketched above. But there would seem to be no assurance that such would be the case.

In conclusion, we may then say that if an advance in the technical or exchange efficiency of a society occurs,

1. The factor which increases least will secure the greater share of the benefits. The factor whose supply is negative will, provided that the other factor is positive, gain more than if it were also positive.

2. The greater the *difference* between the elasticities of the factors, the greater the unit gain secured by the more inelastic.

It is in other words to the advantage of a factor that it should not expand but rather contract under prosperity and that its rival should increase in quantity as much as possible.

3. Although the compass of this article is altogether too short to develop this point, it can be said that such mathematical computations as have been made seem to indicate that these two conclusions apply also as regards the relative shares of the total product as well as the return per unit. This is true for certain plausible assumed productivity surfaces but not for others.

There is indeed grim irony in the fact that the principles of distribution run so counter to the heart of the Christian ethic with its faith that "whoever shall lose his life shall find it," and with its injunction to go the second mile. Within the world of purely economic values and motives however, that factor which gives of itself most sparingly reaps the greatest reward, and reaps the more, the more the other factors expand and give of themselves.

4. Where one factor has a negative elasticity of supply which is greater than the positive elasticity of the other, there is a cumulative process tending to enhance the return to the negatively elastic factor. The same may also be true when both factors have negative supply curves but of differing magnitudes.

6. *Elasticity of Supply in Relation to Decreases in the Net Effectiveness of Industry*

Precisely the reverse set of results would occur were the efficiency or exchange powers of a society to decrease without any prior change in the quantities of the factors themselves.

If the supplies of both were completely inelastic, then for a symmetrical productivity surface each would suffer an equal proportionate loss without, of course, causing any diminution in the quantity of either. Were they both of infinite elasticity, then there would be a great contraction in the supply which would only be checked by (1) the lessened strain put upon some third factor such as land, and hence the higher joint product credited to the two factors in question, (2) the probability that some of the supply of the factors would be offered for a somewhat lower price rather than not be offered at all. If both of the elasticities were positive but equal, then the initial decrease in

return to each would cause an equal proportionate shrinkage in quantity but would not throw out of balance their relative marginal productivities.

If, however, we were to deal with differing elasticities, one let us say being 0 and the other +1.0, then the supply of the former or X would not contract while that of Y would, and this would raise the marginal productivity of Y above and depress that of X below the point to which they had originally fallen as a result of the decrease in the effectiveness of industry. Were the elasticity of X to be .5 instead of zero, then X's loss would be less because its supply would also shrink as a result of the decline in efficiency, although not by as much as that of Y. The situation would be still further mitigated by the fact that the further decline in X's productivity as compared with Y would be partially arrested by shrinkage in its quantity, while that of Y would advance somewhat as a result of the change in proportions. But X would still bear more of the brunt of the burden than Y.

When we are dealing with a combination of a negative with a positive supply curve, then the fall in unit return will cause the quantity of the former to expand and the latter to decrease. This will greatly increase the marginal productivity of the latter and diminish that of the former especially if the negative elasticity is greater than the the positive.

When both supply curves are negative, the one with the greater negative elasticity will suffer most, since a fall in the rate of return will cause a greater expansion of its supply and hence will lower its marginal productivity. With each fall in return more of X would be supplied, while the rise in the marginal productivity of Y would cause less of this factor to be offered so that the disparity between the two would be accentuated.

The conclusion is obvious therefore, that when there has been a decline in the net effectiveness of industry, that the factor which is more elastic loses less than the other factor, and such units of the factor as remain are able to throw a larger part of the burden off upon the shoulders of the other factor. The best protection, so far as return per unit is concerned, is to contract the supply greatly.

For a factor therefore to secure the maximum advantage in periods of industrial advance and to suffer the least losses in periods of industrial depression, it should have (1) a highly

inelastic supply curve above the point of present return and (2) a highly elastic supply curve below this point.

The above conclusions may throw some light upon why the owners of land derive great advantages from an advance in industrial effectiveness, in which their factor does not increase, and also why they suffer most during periods of industrial retrogression when their supply cannot contract.

7. *Elasticities of Supply in Relation to Changes in Bargaining Power*

Let us turn now to what the results would be if the relative bargaining power of any one factor were to be increased without any change in the effectiveness of industry as a whole.

A. What is an Improvement in Bargaining Power?

This forces us to a consideration of what is meant by bargaining power and what constitutes an improvement in it. There are three possible forms which this improvement may take, of which the last two are by far the most important: (1) An improvement in the technique of negotiations, such as greater knowledge of the situation and personal adroitness and shrewdness in driving a bargain. (2) A shifting of the supply schedule in some measure to the left so that at the same price a smaller quantity will be offered than before. (3) The introduction of at least a partial monopoly of supply so that a large number of units will have to be accepted or rejected as a block instead of the atomistic competition usually posited.

In so far as greater knowledge of the economic situation is a factor, this enables the final adjustment to be more closely in harmony with the equilibrium which the economic forces would tend to bring about than would otherwise be the case. Greater technical skill in driving a bargain would undoubtedly help many individuals, but it certainly would not alter the five fundamental conditions outlined in the concluding paragraph of Section 2. It would assist the weaker factor in securing more nearly what pure economic forces would tend to secure for them, but it would not seem that craft and bargaining ability could by themselves alter permanently in all circumstances the amounts which each would receive. Men who think that this can be done forget that there is a great deal of competition between capitalists for labor and between laborers for employment.

This increase in ability to all would (unless the group bargained as a whole) therefore be in part turned against itself. But that there are certain conditions where such an improvement in bargaining technique might result in permanent changes and indeed in some cases lead to a cumulative movement will be demonstrated by the analysis which is to follow.

The change in the supply schedules whereby less will be offered at identical prices than before, may be expressed by (a) shifting the whole supply curve (on a double logarithmic chart) to the left but retaining the same elasticity (slope) as before, or (b) from keeping the same curve for a portion of the supply but making it become more inelastic for other stretches. Since prices are seldom determined in the lower ranges of the curve, the difference between the two is difficult to distinguish in the price making regions of the curve and may for all practical purposes be disregarded. Whether the curve has shifted its position to the left but kept its same elasticity, or reduced its elasticity after starting from the same position, the result is that less will be offered at the same price than before.

The cause for this, in the case of the factor labor, may be the organization of the men into a trade-union which will distinctly lessen the fears of the workers as to what will happen if the employers refuse to pay the wage demanded. An individual may well be reluctant to hold out for a given wage if he is acting all alone, lest he be not employed. With scanty funds to maintain him and with many workmen, whom he believes are ready to step into his shoes, he will tend to lower the price at which he will sell his labor. But in a trade-union he has the consciousness that his fellows are pledged not to undercut the union rate for which they, like himself, are striving. This reassurance gives him and others more strength to hold out. Similarly, the fact that the members of the union in various regions of the country have subscribed to a common fund which is used for strike benefits, allows the group to contemplate more philosophically their possible failure to be hired. It is no longer a possible choice between employment at the terms of the employers and no employment at all at that trade, but between the wage the employer offers and the benefits paid by the union. Loss of work loses, in consequence, much of its terrors. There are still, to be sure, many fears which are left; such as the fear that the

strike benefits may give out, the fear that the employers' resources may be stronger, the fear that either non-union workmen may be brought in from outside or that the work may be sent out to non-union shops, the fear that in the event that the strike should prove unsuccessful the strikers may be blacklisted from employment or discriminated against as regards promotion. But these fears are less than they otherwise would be, and at the same price less labor is offered than would otherwise be the case. The greater is the number who are thus organized, the more the supply curve will approach something of a plateau when the level of the union rate for which the unionists are striving is reached. The nature of the change effected by trade-union organization may be illustrated in Figure 15. Curve A_3 is assumed to represent the supply schedule of labor before and Curve B_3 after a sturdy organization has been built up. The laborers from A to B are common to both situations, namely those who would work for little and who do not wish to join the union lest it impair their ability to secure work. Their bids, therefore, are still low in the hope that they will be employed. The group from B to B_1 represent those who do not join the union but who will ask for more than they otherwise would, because they know that the large group in the union will demand a still higher wage. The group from B_1 to B_2 are the union members who are sticking out for the wage of height B_1. This may well be somewhat less than the minimum which they are ostensibly demanding of the employers. The units of labor offered from B_2 to B_3 may be regarded as the number of overtime hours which would be furnished by the workers at given prices. It will be noticed that it will take a larger price than formerly to induce an equal quantity to offer itself. This is because the basic wage is itself

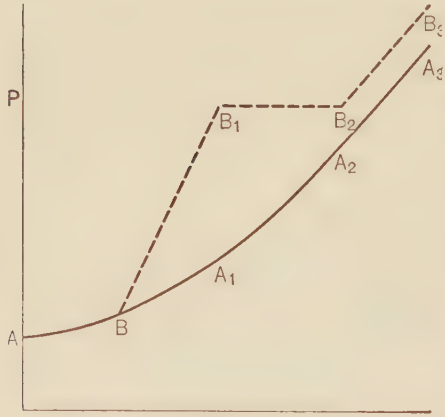


FIG. 15

higher and because the practice of demanding bonuses for overtime work becomes more and more firmly established as the unions increase in power.

There are two qualifications which should be thoroughly appreciated. The first is that if the strike should prove difficult to win the union members might well lower their rate below the level B_1. This would cause those from B_1 to B_2 to lower their section of the curve and would lead to a lowering in absolute units of the curve between B_2 and B_3 with or without change in the elasticity for these points. Secondly, such a supply curve would tend to be much more of a short-time than a long-time curve. The long-time supply would be greatly modified by the rate of population growth which any change in wages would induce. If the relative strength of organization persisted without a corresponding increase in that of the rival factors, this alteration in the supply curve would still persist although in a somewhat mitigated form.

The effects on the supply curves of the factors of properly enforced legislation dealing with wages, hours, and interest rates are even more apparent.

When through state action a minimum wage ruling is passed forbidding employers to hire labor for less than a given sum, say 40 cents an hour, the supply curve of labor is immediately given a point of origin which is above and to the left of the former supply curve. Even though those who would originally have offered themselves for only 40 cents an hour do not increase their sticking-points, then the new supply curve will be higher than the old for a portion at least of the supply. The quantity of labor which would previously have been forthcoming at less than 40 cents an hour will not now be supplied unless this amount is paid. If, because of the higher curve in the lower reaches of the labor supply, those in the upper reaches were also to ask for more, the supply curve here would shift to the left also. Such a situation can be shown by Figure 16 when $A\ A_2$ represents the original supply curve and $B\ B_1\ B_2$ the curve resulting from minimum wage fixation by the state.

The effect of shortening the hours of work, were it not accompanied by a corresponding increase in the intensity of labor, would, of course, be tantamount to a decrease in the supply of labor.

For purposes of analysis we can then represent an improvement

in bargaining power whether secured through voluntary or state action, as a leftward movement of the supply curve of the factor.

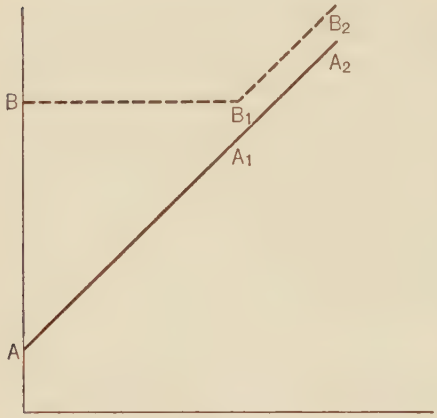


FIG. 16

It would probably not be characterized by a uniform elasticity throughout its course but for the purpose of simplifying our analysis, we shall assume that there is such a uniformity. This, however, is not nearly so important relatively as the fact that the elasticity is on the whole less than before. And this is the point which should be stressed and the effects of which will be traced.

B. The Effects of Changes in Bargaining Power.

We may now proceed to examine what would be the effects of increase in bargaining power under different sets of elasticities of supply and we may use for the first case, that of complete inelasticity of supply of both factors. We may represent in Figure 17 the line A S as characterizing the original supply curves for both X and Y. But with the improvement in the bargaining power of X, the supply "curve" of that factor, while continuing to be inelastic, moves to the left to the point B. At various prices equal amounts of X will be offered but they will in each instance be less than what was offered before. The ratio

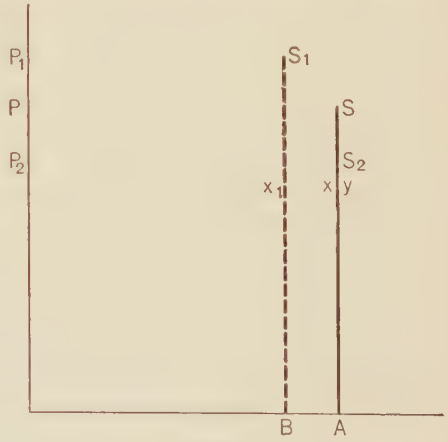


FIG. 17

of X to Y will now be B to A, and in consequence the marginal productivity of X will rise to, let us say, P_1 and that of Y will fall to P_2. But this will create no further change in the quantities of either, so that as long as these quantities are unchanged, X can continue to enjoy the greater return which will come from its higher marginal productivity. Except for the limitations in the productivity curve there is no limit to the increased per unit gains which a factor can enjoy if by limiting its supply it can increase its bargaining power. Where both factors have therefore absolutely inelastic supplies, the arguments of the so-called bargain theorists, that the result will depend on the relative bargaining strength of the two factors, is approximately true if we take as our test of bargaining power, the relative changes in position and slope of the supply curves.

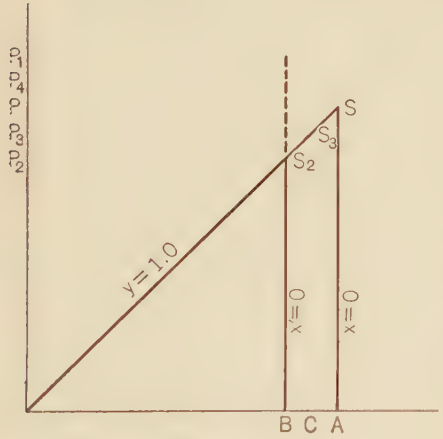


FIG. 18

But this interpretation of bargaining power is one that has been little understood by the bargain theorists themselves. The ultimate unit return of X may therefore be represented by P_1 instead of by P as was originally the case, while the ultimate return to Y may be shown as P_2 instead of P as at first.

Let us assume, however, another case in which X is completely inelastic and Y has unit positive elasticity. (Figure 18.) Then if we indicate an increase in the effectiveness of X's bargaining power by shifting it to the left to B and designating its supply curve by BS_2, we have the ratio of the quantity of X to Y as one of B to A instead of A to A as before. The unit return to X will in consequence rise to let us say P_1 and that to Y will fall to P_2 in consequence of the forces which have been so often mentioned in this essay. But while the increase in payment to X will not lead to any increase in its supply, the diminished return to Y will cause the supply of this factor to diminish

from A *towards* B. But the supply will not fall to B because as it moves towards this point, marginal productivity will rise and this will break the force of the fall. It cannot return to A however, because of the initial change in quantities which the moving of the supply curve of X to the left effected. The point of new equilibrium will therefore be when B quantities of X and approximately C quantities of Y will be supplied, and with a unit return to Y of P_3 and to X of P_4. The factor X would therefore have enhanced its former return per unit while Y would lose, but the losses and the gains would not be as great as when Y as well as X was completely inelastic.

Let us now assume (Figure 19) that the initial elasticities of the supply curves of both X and Y are 1.0 and that they are both represented by the curve S, and that the supply of the two factors originally offered was that represented by A with the rate of payment P or A S. X now secures added bargaining strength and its elasticity decreases from 1.0 to .9, and the new supply curve being represented by X_1 so that at the price P, only B instead of A units as before are offered. This sets into motion the familiar train of consequences. But as a result of the marginal productivity of X rising to P_1 the supply of X will expand while that of Y will contract. There will thus be a double force at work to restore the original equilibrium. The combined movement will restore the ultimate marginal productivities of each factor nearer the original equilibrium than was the case when we were dealing with 1.0 and zero elasticities. But it will not completely restore it since the fact that the elasticity of X was .9 will mean that the supply of this factor will not increase as rapidly as a result of its increase in remuneration as that of Y will decrease. The effect of the initial change in elasticities will therefore not be completely removed. There will be some change in the ultimate amounts paid for units

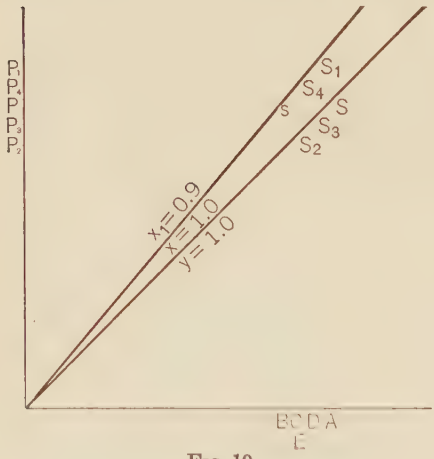


FIG. 19

of each factors, that of X rising above P but appreciably below P_1, while that of Y will fall below P but will still be appreciably above P_2. The ultimate points of equilibrium may then be designated as P_3 and P_4, and at these prices A E fewer units of X and A D fewer units of Y will be forthcoming.

Had the elasticity of Y been 2.0 instead of 1.0, then the ultimate unit gain secured by X would have been still less; for as the marginal productivity of Y fell because of the fact that less X was mixed with it, the supply of Y would contract twice as rapidly as before and hence the forces working for the reëstablishment of the equilibrium would be strengthened. But while the unit returns to X and Y would ultimately approach nearer to P, than P_3 or P_4 they would not quite reach it. X would therefore retain some gain and Y would suffer some loss.

The conclusion is, therefore, that (1) the more inelastic a factor becomes the more it will gain from an increase in bargaining power, while (2)—and this is less appreciated—the more inelastic is the supply of the rival factor, the better it is for the factor whose bargaining power has improved. The units of a factor which remain will desire, therefore, that their numbers should not expand under prosperity nor that those of its rival should decrease under adversity.

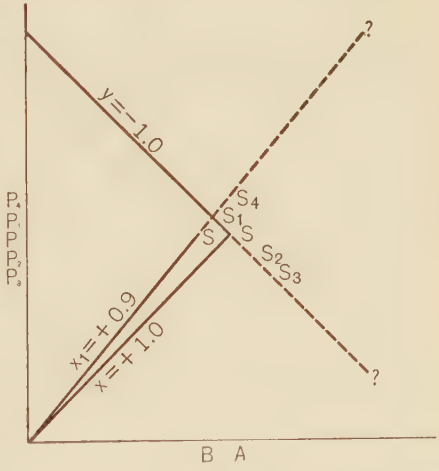


FIG. 20

Still more interesting results of the same general character are secured when we deal with one or more negative supply curves. Let us suppose (Figure 20) that X has originally a positive elasticity of 1.0 and Y an equal negative elasticity. We shall designate the supply offered of each by A and the unit price paid as P (A S). Let us now decrease the elasticity of X to +.9. This will cause only B units of X to be offered for P, and in consequence its marginal productivity would rise and that of Y would fall. This increase in return would cause the quantity

of X to expand while the fall in the price of Y would, since its supply curve is negative, cause the quantity of Y to expand also. But since Y's negative elasticity is unity while X's positive elasticity is now .9, this would mean that the quantity of Y would tend to increase more rapidly than that of X, and hence its marginal productivity would continue to fall and that of X would continue to rise, so that the supply of Y would be continuously increasing faster than X, and there would tend to be a cumulative increase in the remuneration of X and a corresponding fall in that of Y. Under these elasticities it might be thought that there would not be stable equilibrium. But the outcome depends on the type of productivity equation which is assumed, for its partial derivatives furnish the demand curves for the factors whose intersections with the supply curves determine the point of equilibrium.

If, however, the negative elasticity of the one were equal to the ultimate positive elasticity of the other, after the initial alteration in productivities developed, there would be no further alteration of the equilibrium since the increase in quantity would be the same for both.

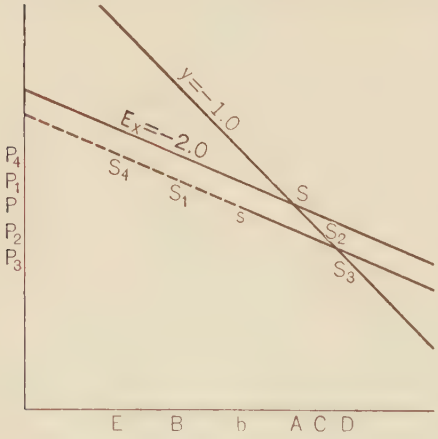


FIG. 21

If the final positive elasticity were to be higher than the negative elasticity, then there would be a counteracting force tending to bring the relative returns nearer even to the original level than that which would result from equal elasticities.

Where both supply curves are negatively inclined (Figure 21) there are further possibilities of unstable equilibrium. Thus, if the supply curve of one factor X is to shift to the left, so that less will be offered at the same price as before, then the increase in payment to X will cause its supply to contract while that of Y will expand. This will in turn mean a still greater increase in the marginal productivity of X and a further

decrease in Y, and this in turn will unleash added quantities of Y and will cause the supply of X to shrink still more. Though mathematically a new point of equilibrium can be found, its economic significance, if any, is not certain.

If only those units of a factor which continue to be supplied were to be consulted, they would wish not only that their number should remain stationary under prosperity, but that it should actually decrease. The surviving units would be still further aided if the rival factor actually poured forth more of itself whenever the remuneration per unit of this second factor is decreased.

With two factors having negative supply curves, an increase in the effective bargaining power of one results in a cumulative showering of advantages upon the factor which improves its position and a cumulative degradation of the factor which does not. It would be a continued process of giving to him that hath and of taking away from him that hath not. This would indeed be unstable equilibrium. The same forces would be set at work although to a lesser degree, if the factor which improved its position were, while of positive elasticity, to have a lower coefficient of elasticity than that of the factor with the negatively inclined supply curve.

It may also be said that the changes in return per unit which I have sketched as being created by a change in bargaining power, seem, according to computations made by my associate, Mr. S. W. Wilcox, to be true also as regards the relative share of the total product secured by each in the case of the more plausible formulæ experimented with for the equation giving product as a function of the number of units of the factors of production.

8. *The Influence of the Relative Proportion of the Total Product Received by the Factors*

It is not pretended that the influences upon distribution of the respective supply curves which have been sketched above are the sole forces determining the unit and proportional returns received by each of the factors of production. That they do affect in an important manner the amounts and shares received has, I hope, been demonstrated by the necessarily summary discussion which has been given. But there are other factors to be considered and other problems which must be solved before we can arrive at

a correct theoretical explanation of the forces governing the processes of distribution.

1. It will be noted from the discussion in the three preceding sections that we have tacitly assumed that the shares of the total product which the factors originally secured were equal, and that where only a change in bargaining power had occurred that an increase of one percent in the return to one factor meant a corresponding decrease of one percent in the return per unit of the other factor. But neither of these assumptions need be true, and in real life they certainly are not. What modifications in them would such other variables necessitate in our theory? Let us suppose that labor originally received two-thirds and capital but one-third of the total product. Then if, without any change in the net effectiveness of industry, labor were to increase its return per unit by five percent, its share of the total product would then rise to seventy percent; but the share of capital would fall to thirty percent, and if we assume that the total product would be unaltered, this would mean a fall of ten percent in the payment for each unit of capital. Thus, what would be a five percent increase in the return for each unit of labor would be a decrease of ten percent for each unit of capital. This would, of course, cause different movements of the supplies of these factors even though their elasticities were to be the same. Thus if each of their elasticities were positive and equal to unity, there would be an increase of five percent in the quantity of labor and a decrease of ten percent in the quantity of capital. This would be a stronger force towards restoring the original equilibrium than as if the supply of capital had only contracted in the same proportion by which the supply of labor had expanded.

If the supply of labor were completely inelastic, while that of capital had positive unit elasticity, then an improvement in labor's bargaining power would have similar results. For while the supply of labor would not increase, the supply of capital would decrease at twice the rate which it would, had the total product of industry been originally divided equally between the two. In consequence, the final gain of labor would be less than it would were a one percent gain for labor to cause a loss of only one percent to capital.

The same results can be traced for all sets of positive elasticities. The larger is the share of the total product which is

received by the factor which has improved its bargaining position, then the less will be its ultimate gains. For a gain of a given percentage in the unit return to this factor will cause a loss of more than this percentage in the unit return of the other. This in turn will cause the supply of the factor which has experienced the loss to contract more rapidly than it would had the relationship between the shares been one of equality. This greater contraction in the supply would, of course, tend towards establishing the ultimate equilibrium nearer the original situation. But it would not restore the original equilibrium since the initial shift in bargaining powers and in the quantity of the one factor must be remembered.

Conversely, the smaller the share of the total product received by a factor, the more per unit it can secure (other things being equal) from an increase in bargaining power. This is so because the smaller its share, the less is the decrease in the price per unit of the other factor, and the less consequently is the diminution in the quantity of this second factor.

When the supply curve of one factor is negatively and that of the other factor positively inclined, then if the former has the smaller share of the total product and if the positive factor, or that with the larger share, improves its bargaining position, the latter will gain more than if the shares were originally equal. For a five percent unit increase to the positive factor would mean a ten percent decrease to the negative factor. If both their elasticities were originally equal to unity, then the supply of the negative factor would increase by ten instead of by five percent, while that of the positive factor would grow by only five percent. The resultant increased marginal productivity of the positive factor and the decrease for the negative factor would alter the situation still more in favor of the former.

If, however, the original elasticity of the negatively inclined factor had been but .5, then after the initial change in bargaining power, there would be no further changes since the quantities of each would now expand in the same ratio. But this, it should be noted, would give a result more advantageous to the positive factor than that which would have obtained had the shares been equal. For then the supply of the positive factor would have increased more rapidly than that of the negative factor, so that the final equilibrium would give a unit return to the former

which would be *below* the point which the change in bargaining powers had immediately effected.

Conversely, if the smaller and negatively inclined factor were to improve its position by becoming less negatively elastic or by shifting its whole supply curve to the left, then the attendant percentage gain per unit which it secured would be greater than the loss per unit suffered by the rival and positive factor. Its supply would, therefore, tend to contract more rapidly as compared with the positive factor than would be the case were the factors to receive equal shares, for then the positive factor would decrease with equal rapidity. Consequently, the ultimate unit return to the negative factor would be greater than it would have been under the condition of equal shares. When the negative factor therefore takes the aggressive and is able to force up its unit return, it is aided if the positive factor originally receives a larger share of the total product, so that it will not contract as rapidly as it would otherwise do.

Where the positive factor received a smaller share than the negative, then if the former raises its bargaining strength, the decrease in remuneration per unit of the negative factor will now be less than the increase in the return per unit for the positive factor. This will cause the quantity of the negative factor to increase less rapidly than under the assumption of equal shares and hence will decrease the amount of the gain per unit, which the positive factor will be able ultimately to secure.

If the negative and larger factor, on the other hand, improves its bargaining position, it causes a greater percentage fall in the return per unit to the positive and smaller factor than the increase per unit which it is able to secure for itself. This means that the supply of the positive factor will be curtailed by a given advance in the bargaining power of the negative factor more than would be the case under the condition of equal shares. The negative factor would, therefore, as a result of its possessing a greater share of the total product, gain less than it would under equal sharing.

When both factors are negative, then an increase in the bargaining power of the one with the greater initial share will cause the unit return of the other factor to fall more rapidly than

would otherwise be the case, and consequently would cause the supply of this other factor to be produced more abundantly. This in turn would raise the marginal productivity of the larger [1] factor more than under the condition of equal sharing in the product. Where, however, the smaller factor successfully takes the aggressive, the unit loss to the larger factor is of a smaller relative magnitude than its own gain, and consequently the quantity of the other and larger factor will expand less than would be the case where equal sharing prevailed, and a one per-cent increase to one factor was accompanied by a one percent loss to the other. Hence the ultimate marginal productivity of the smaller factor will be less than it otherwise would be and it would profit less from an increase in the effectiveness of its bargaining power.

The matter may indeed be summed up by saying that it is to the advantage of the factor which improves its bargaining power to expand as little as possible in quantity, and indeed to decrease as rapidly as possible, while the less the other factor decreases and indeed the more it increases, the greater will be the permanent gain secured by the factor which has advanced its bargaining power. But such movements in the relative quantities of the factors are not only caused by (a) the relative elasticities of the supply of the factors as analyzed in the sections five, six and seven, but also (b) the relative proportions of the total product obtained originally by the two factors.

(1) When both factors have positively inclined supply curves, the smaller the share enjoyed by the factor which improves its position, the more it can gain, and the larger its share the less it can gain. (2) When both factors have negative supply curves, the larger the share of the factor which improves its position the more it can gain, and the smaller its share, the smaller will be its ultimate increased return per unit. (3) When one factor is negative and the other is positive, both will gain more if, when they improve their bargaining strength, the positive factor has the larger share while both would lose more than they would otherwise do if the negative factor were to have the larger share.

With regard to the quantity of a factor supplied the combined

[1] By the large factor is meant the factor enjoying the greater share of the product.

effect of (1) its relative elasticity of supply and (2) its share of the total product can be obtained by multiplying the former by the ratio of the share of the other to the one in question. Thus, if the elasticity of X were .5 and if it received one-third and Y two-thirds of the total product, then the relative change in the quantity of X, which an increase in the return to each unit of Y would occasion, would be the same as that caused by an elasticity of supply of 1.0 for X (*i.e.*, $.5 \times \frac{\frac{2}{3}}{\frac{1}{3}} = .5 \times 2 = 1.0$).

If X received but one-fourth of the total product, it would be identical with an elasticity of 1.5 *i.e.*, $.5 \times \frac{\frac{3}{4}}{\frac{1}{4}} = .5 \times 3 = 1.5$.

Where, however, there is an increase or decrease in the net effectiveness of industry, both factors will tend initially to be affected to the same relative degree whatever may have been the share of the total product which each originally received. For a decline of five percent in the total product would virtually tend to be distributed over the factors in the same proportion which each originally secured, let us say in the ratio of two-thirds and one-third, and this would mean that the remuneration per unit would decline by five percent for each factor. An increase in the net effectiveness of industry of a given percentage would also tend to be initially reflected for both factors in equal percentage increases in reward per unit.

In these cases, therefore, the relative proportion of the product secured by the factors does not affect the final result. The relative elasticity of supply will determine the nature and degree of the alterations in the supply which a given change in effectiveness will create and consequently will shape the ultimate equilibrium which will be established.

9. *Other Factors*

But there are still other forces which must be plumbed and whose influences upon distribution must be analyzed. The most

important of these are: (1) the complications introduced by considering more than two factors of production, (2) the complications introduced by considering more than one commodity, (3) the influence which is exercised by the relative amounts of labor, capital and land rent embodied in the commodities and services which are consumed by the recipients of interest, wages, and rent, (4) the influence of the relative elasticity of demand for these commodities and services. Each of these forces will now be briefly considered and their influence evaluated.

1. The complications introduced by considering more than two factors of production. We have hitherto been considering in a very simplified manner only two factors which we have at times labelled labor and capital. But there is, of course, land and natural resources which is a third factor. Most modern theorists following Francis A. Walker also set up a fourth factor, namely management. It is difficult to recognize this, however, as a distinct economic category or to regard its payment, profits, as any unified return. The management of an enterprise would seem to fall under the category of labor and the wages of management to be indeed but a species of wages. The work of management undoubtedly calls for talents of a high order. Such talents may be so rare that there is competitive bidding for them, which makes the returns received partake of the nature of rent, in the sense that a surplus is paid over the cost of furnishing the service. Management also bears the risk but this more and more can be settled on actuarial basis. It is, moreover, doubtful whether taking business as a whole, the payments for risk bearing are greater than the losses incurred.[1] There remain residual profits and these have been more resorted to by economists as a catch-all to accommodate returns which cannot be attributed to land, capital, labor, than as a reward for a separate type of service. They result from dynamic changes in production which are not immediately distributed to the factors and from changes in the demand schedules of commodities, which for a space give great rewards to some. They arise from the failure of the factors to move with the speed and intelligence which ordinarily ascribed to them by economists. Residual profits, therefore, accrue because of friction and time lags rather than as

[1] On this point, see Knight, *Risk, Uncertainty and Profit;* Hardy, *Risk and Risk-bearing.*

a reward for a positive contribution by a fourth factor of production.

But natural resources, at least, are a third factor and the question naturally arises how they may be fitted into the analysis? A method which naturally suggests itself is to compare labor with a combination of land and capital. Since the elasticity of the supply of natural resources, if not precisely zero, is certainly very close to it, the combination of land with capital will (if the supply curve of the latter is positive) make the composite elasticity of the two less than that for capital alone. In securing the composite elasticity for these two factors, the elasticity of each factor should, of course, be weighted by the percentage of the national income originally enjoyed by each. The comparison of how labor fared as compared with the composite fortunes of the owners of land and capital would afford a basis for judging the effect of given changes upon service income as compared with property income, and hence would be valuable in itself.

The relative effects produced upon rent as compared with (1) wages and (2) interest, could then be studied in turn and their results isolated. Since labor and capital (and hence wages and interest) have previously been compared for the purpose of isolating the effects, labor and natural resources could also be merged together and compared with capital. It would be possible then to disentangle the approximate effects produced on each of the factors and to frame a general conclusion for each according to its relative coefficient of elasticity and the relative share which it originally received of the total product.

2. Real difficulties are encountered when we move to a consideration of several commodities. Hitherto we have been dealing with only one and consequently have taken into account only one general productivity surface, composed as it was of (a) the rate of increase of the total product with equal proportional changes in the factors, (b) the rate of slope of the product as the proportion of X to a constant quantity Y was altered, and (c) the rate of slope of the product as the ratio of Y to a constant quantity of X was altered.

But as we deal with several commodities, we encounter diverging slopes of marginal productivity as measured in terms of physical units, and the question naturally arises how these

divergent rates of change in the total product which follow an alteration in the physical quantity of the factors, may be so equated as to be reduced to a common function. How, in other words, can the production of potatoes, copper ore, loaves of bread, and neckties be reduced to common units in which we have different technical coefficients of production? This, however, can be effected by computing index numbers of production in which the quantities of each product, weighted by their values, are reduced to relatives. If the change is to be studied over a period of time, this general index of production, similar to those constructed by the Federal Reserve Board and the Harvard Committee on Economic Research, will measure sufficiently well what we desire. And if it be objected that the relative values will change from year to year and that consequently an index based on fixed weights will be wrong, it can be shown that Professor Irving Fisher has eliminated this difficulty in his "ideal" index number where he commends the use of the geometrical average of the index of a commodity in a given year weighted by its value in the base year multipled by the index for the given year weighted by the values of the given year.[1]

In this way a satisfactory physical index of general production can be secured to measure the physical effects of altered quantities of the factors. Within these physical outputs, of course, productivity will be measured in terms of value, but for the society as a whole we can measure fairly accurately the productivity as a whole. Even here, however, there will be difficulties in taking into account (1) the relative degree of fabrication in manufacturing at different intervals, and (2) the relative amount of services supplied at differing periods.

3. The relative amount of labor, capital and imputed services of natural resources which are contained in the commodities upon which laborers expend their wages as compared with the relative quantities of these factors which are consumed by the recipients of interest and of rent, also affects the final apportionment of the product to the factors of production. It is important therefore, to trace the effects of consumption as well as of pro-

[1] See Fisher, *The Making of Index Numbers* (1st edition), p. 482. The formula is:

$$\sqrt{\frac{\Sigma q_1 p_0}{\Sigma q_0 p_0} \times \frac{\Sigma q_1 p_1}{\Sigma q_0 p_1}}$$

duction upon distribution. While personal distribution is, of course, not identical with functional distribution, since one man, such as a farmer, may receive an income from land, labor and capital, nevertheless for the great masses of men the economic classes tend to conform to the categories. Thus the wage-earners receive but a small fraction of their income from the interest on their capital holdings, while the possessors of large fortunes derive most of their income from returns on their property. A change in the ratios received by factors will then alter the relative income of individuals.

If a factor then increases its share of the national income, the question is important as to whether it will spend this increased percentage upon goods in which there is much labor but little capital or waiting, or for articles or services in which there is relatively little labor and much capital or waiting.[1] Thus, let us suppose that labor were to receive a larger proportion of the total product than before, if it were to expend its gains upon articles in which an extraordinarily large amount of waiting had gone, then the demand for capital and consequently its marginal productivity would go up by far more than would be the case were labor to buy articles and services in which only a small quantity of capital was embodied. Conversely, if it were to buy articles in which much labor was embodied, it, as a class, would profit still further from the increased demand and increased marginal product which would result. Hence the more labor purchases personal services, the more laborers will profit from the *existing national income*, while the more capitalists buy products in which a large amount of capital is contained the more capital will profit.

The suggestion presents itself from this that since the recipients of large amounts of interest spend a much larger fraction of their income upon personal services in the form of servants, entertainers, etc., and buy goods upon which a great deal of hand work has been lavished, that an increase in return to the capitalists would be partially offset by the increased demand for labor which would result. The rise in demand for chauffeurs, butlers, custom tailors and violinists would increase the wages for teamsters, bakers, cutters and general labor.

[1] I am indebted to my friend and colleague, Jacob Viner, for calling my attention to this set of influences.

4. If the goods in which relatively much labor is contained have on the whole elasticities of demand different from those which characterize the commodities in which relatively little labor is embodied, the processes of distribution will be affected.

Let us suppose that the demand for the goods in which much labor is mixed (A goods) is much less elastic than that for commodities (B goods) in which there is relatively little labor. Then if the net effectiveness of industry increases with the same number as before of labor units and capital units, the values of the B goods will fall relatively to the A goods. The marginal productivity of labor will therefore rise as will its reward. There will, of course, be a movement of labor from the B to the A industries which will reduce the gains somewhat, but they will nevertheless still be considerable. If the B industries were, however, to be characterized by the more elastic demand, labor would not make such gains for the values of B in terms of A, would rise and with this the demand for and the marginal productivity of capital.

Should a diminution in the effectiveness of industry occur, the prices of the B goods would rise much more rapidly than those of the A category and hence their relative values would increase. This would increase the demand for and the marginal productivity of capital above the point which it would in the absence of such differences in elasticity of demand, attain. The marginal productivity of labor would, on the other hand, be lowered.

If the supply of labor should shift to the left, and if the elasticity of demand were greater for the A than for the B commodities, then the curtailment in production which the reduction in the number of labor units would occasion, would cause the prices of the B goods to rise more rapidly than those of class A. There would consequently be a movement of labor out of A into B with an attendant probable reduction in the price of labor below what it would otherwise have been had the opposite condition obtained as to elasticities.

10. *Some Next Steps in Research*

What is clearly needed is inductive research to determine (1) the actual elasticities of supply of the factors of production, (2) the changes in physical output effected by varying the quantities

of the factors, (3) the degree to which the actual course of wages, interest rates, and the proportions of the total product received by the factors have conformed to what would be expected from our analysis once the elasticities, etc., are known.

I have for over a year[1] been attempting to determine inductively from English and American experience the probable nature of the supply curve of labor and capital. The relationship between the short-run supply of labor and the rate of real wages has been tested as regards the proportions gainfully employed, the standard hours worked, the percentages of absenteeism, turnover, etc. The interconnections between the movements of real wages and of birth and net fertility rates have also been studied in great detail, as have the relationships between real wages and the total number of man hours *offered* for sale.

The supply curve of capital has also been explored by computing indexes of the growth of physical capital in both England and the United States, and correlating these changes with changes in the rate of interest.

Several other lines of investigation have also been started and it is hoped that all of these inductive studies may soon be published. It is not pretended, however, that more than a beginning can be made by any one man. A large group of inductive workers is needed to secure the concrete values for the many unknowns, and thus put content into what are at present rather empty economic boxes. If this article serves only to indicate the nature of the problem, to analyze the forces at work, and to stimulate others with the desire of adding concrete material for the solution, it will have fulfilled its purpose.

[1] Since the early part of 1925.

LAND ECONOMICS

Richard T. Ely

Land Economics, a new branch of economic science, is a product of the specialization which accompanies the development of all sciences. New as land economics is, however, it is already being split up into more or less separate fields; to mention only two of the more obvious divisions, agricultural land economics and urban land economics. It is a surprising fact that land economics has matured so late. So far as the writer's information goes, 1919 is the first year in which a comprehensive university course was given under the title "Land Economics," comparable to those offered many years previously in labor economics, banking, taxation, profits, capital and interest and so on.

Treatment of Land in Economics. In economic treatises of the past we find little treatment of land as an economic concept, that is, as a requisite of production sharing in the income of society, and yet land has always been regarded by economists as one of the primary factors in production. Why should so much more attention have been given to labor and to capital and more recently to management or the rôle of the entrepreneur? It may not be easy to answer this question, but it is here suggested that the theory of rent, especially as developed by Ricardo, is largely responsible. This theory has gained such an influence in the minds of economists that it sometimes seems to amount almost to an obsession, from which it is extremely difficult to escape. This theory presents rent as something peculiar and very simple. All land is regarded as a single force or factor with differences in income yielding power. There is no discussion of the various classes of land with reference to their characteristics, their peculiar problems or policies for their utilization. One substantiation for the hypothesis, that the Ricardian theory of rent is at least a partial explanation of the tardy development of land economics, may be found in the fact that in Germany, where the

Ricardian theory of rent has had less influence, more attention has been given to land as a factor in production, and at least the beginnings of classification of land are found in German economic treatises.

The Complexity of the Land Concept. So long as land was considered as if it were one thing, a unit, and a thing producing an income of an entirely peculiar character, a development of land economics could not be expected. However, when we recall that the term land, as used by economists, means the forces of nature, so far as they have economic significance, it seems a little absurd to regard them all as belonging to one simple economic category or class. How diverse are the forces of nature! And what can we say about all these forces which have much scientific or practical value? Some things of real value, to be sure, can be said. Nevertheless, we cannot get very far scientifically or practically so long as we regard land as an undifferentiated whole.

We can test this statement by calling to mind some of the popular discussions in regard to land. Public *versus* private ownership is much debated. But it is ridiculous from any point of view to say of land as a whole that it should be owned publicly or that it should be owned privately. We must first know of what kind of land we are speaking. Practically all agree that our city streets and rural highways should in general be publicly owned, and that privately owned toll roads are usually, though not always, an anachronism. Experts are for the most part agreed that forests should be owned by some public body, national, state or local political unit, although an important place is also found for private ownership. But for the great bodies of water, covering more than half of the earth's surface, the nations of the world reject the idea of either public or private ownership, and stand for the idea that the seas are free, common, ownerless goods, like the air we breathe. On the other hand, the experience of the world and the nature of the case speak overwhelmingly for private ownership of purely agricultural land. Thus, not even one problem in land utilization, such as ownership, can be handled satisfactorily without consideration of the different kinds of land.

Another statement that we hear is that land should be brought into use; and it is proposed by some to tax land to the point of

confiscation, in order to bring it into use. Yet we find that some kinds of land are being brought into use too rapidly, and particularly is this true with respect to one kind of land, namely, privately owned forest land. Experts are in general agreement in their belief that taxation in the United States has brought forest land into use too rapidly and this has been contrary to the principles of conservation. But we need not continue; the reader can find many illustrations showing that one of the first steps in any scientific or practical treatment of the land is classification.

Idea of Property Distinctive in Land Economics. Many sciences and arts deal with land; for example, geology and agriculture and in certain aspects engineering, landscape gardening, and even architecture. What is it that marks out a field for land economics? It is the concepts, property and value. More than any others these two concepts distinguish economic inquiries concerning the land from other sciences and arts dealing with land. Property and value mark out the field of land economics and separate it from those sciences which treat of land with reference to its productive powers in agriculture or its geological content and formation.

Let us then clearly grasp the property-idea as distinctive, giving us property-relations. Economics in general is a science of human relationships, and so is land economics as one of the major divisions of economics. This becomes clear, if we consider the topics with which we deal in land economics. To mention only a few: tenancy in city and country, value and price of land, taxation of land, public ownership, community ownership, the open range, large landholdings, conservation, height of buildings, the congestion of urban population.

Definition of Land Economics. We are now prepared to proceed to definitions, and we offer the following as a broad general definition of land economics: *Land Economics is that division of economics, theoretical and applied, which is concerned with the land as an economic concept and with the economic relations which grow out of the utilization of land as property.*

The older economists distinguished frequently between science and art. This distinction, which has generally fallen into disuse, may be helpful in giving us a fuller idea of the proper scope of land economics: *As a science, land economics seeks the truth for*

its own sake. It aims to understand present facts in regard to land ownership in all their human relationships, to explain their development in the past, and to discover present tendencies of growth. As an art, it aims to frame constructive land policies for particular places and times.

All our social sciences are a result of evolution characterized by growing complexity, differentiation and integration, to use terms which the student of Herbert Spencer will readily recognize. Many of the topics with which we deal in land economics had received discussion, and some of them elaborate discussion, before we ever heard of land economics. Likewise, before we had economics as a separate social science, we find discussion of economic questions, and 2000 years before the time of Adam Smith, Aristotle treated economic ideas in a way that even now is instructive. What land economists have done is to gather together scattered discussions of various topics relating to land as an economic concept; to separate them from other economic discussions; to round them out; and to make thus a separate branch of economic science.

The question of what is science is often raised and there can be no doubt that very many will be skeptical as to the possibility at the present time of a science of land economics. It is well, therefore, for the writer to state his position. To him science means generalized knowledge with certain metes and bounds determined by the particular field of knowledge. It deals with phenomena and their causes which are of such a kind that they are capable of being treated as a separate branch of knowledge. These phenomena and their causes must have a certain magnitude to form a branch of knowledge. We may get together a small group of phenomena, a dozen or two, and consider their causes. Even if these were interesting and important, the field of knowledge would be too small for separate treatment. In economics we take human relationships of a particular kind in their economic aspects. These relationships multiply and fall into various distinct branches of economics. Some of these relationships of a particular kind may at first be too few really to form a separate branch, but they may increase, absolutely and relatively, and thus acquire the status of a separate branch of knowledge. This is true with respect to those relationships arising out of land as property. Take agriculture, for example. In the self-sufficing

stage the relationships were few. Now we live in an age of commercialized agriculture and the relationships are many and varied. We have likewise a vast number of relationships with respect to urban land and other kinds of land.

In an address given about three years ago Chancellor David Starr Jordan said this: "Science is human experience tested and set in order." This is entirely in accord with the idea of science just expressed by the writer. Chancellor Jordan said, furthermore, that science had three great purposes: usefulness, the foundation of ethics, and the development of the human mind.

Now land economics meets all of these tests. It is most useful as a guide in helping us to utilize the land. It helps us lay the foundation of ethical conduct, and its various ramifications offer every opportunity to train the human mind. It requires the best powers we have.

Science wins ever new territory and its scope is constantly expanding. Law and medicine offer illustrations and now land economics has come into being. We can get at this matter of science in this way. If land economics is becoming a science, it should develop a profession to deal with the land, just as we have professions to deal with law and medicine. Dr. Charles F. Thwing, president emeritus of Western Reserve University, has given us permanent and outstanding characteristics of a profession. They are as follows: (1) Money making is regarded as a condition, not as an aim; (2) The sense of brotherhood among the members; (3) Public service; (4) The possession of certain standards for entrance; (5) A body of literature concerning the profession. The real estate business meets these tests and is slowly but gradually becoming a profession. The better men in the business meet all these tests and we have a growing body of literature dealing with the profession.

Now that we have discussed land economics as a science, we observe in its evolution the development through specialization and differentiation of new fields as seen in the separate treatment of different kinds of land, of which one of the most important is urban land. Urban land economics includes such topics as causes of urbanization, the location, structure and future of cities, the peculiar characteristics of urban land utilization, public control of urban land utilization including planning and zoning, urban land tenure and tenancy, taxation and valuation. It is strange

that we have never before had a systematic discussion of urban land economics. The economists have so generally confined themselves to agricultural land that when we use the term, land economics, people are inclined to think that we are talking about agricultural land.

The economics of forestry has already received discussion, and it is justified by the peculiarities of forest land and the difficulties to its wise utilization.

As the differentiation goes on in theory and practice, we find an increasing number of kinds of land. Classification is, therefore, essential in any discussion of land policies, and the classification will vary with the purposes in view. For instance, from the standpoint of utilization, land can be broadly classified into agricultural, forest, mineral and urban land, and growing attention is being given to recreational land and also to water resources.

The next natural division of land economics is a study of land utilization. Classification and utilization are closely related and interdependent. There are many uses competing for the land. Agriculture, forests, mines, water resources, recreation facilities, urban sites are all making demands upon the land. Obviously the main problem here is to maintain the proper balance between these competing uses. Then there is the question as to whether the different demands necessarily conflict with each other or can one use be made to serve two purposes as in Germany, where the forest areas supply both a timber crop and recreational opportunities? It is for a national land policy, which has facts supplied by scientific research behind it, to work out a program for land utilization which can integrate or balance these separate uses to produce the maximum economic benefits for society.

This problem of balance in relation to the land factor may be considered from three angles. There is first of all the matter of maintaining a balance between one form of land utilization and another. The most clear-cut illustration is that afforded by the use of land for the production of staple agricultural products and for the production of trees. We have at present relative overproduction of certain staple crops, which means prices so low that farming is too generally carried on either without any profit or with a very low rate as compared with returns in other industries. At the same time we have a relative underproduction of

trees resulting in high prices for lumber. Other aspects of the forest land problem are mentioned elsewhere in this paper.

Another case of over-expansion is afforded by the urban area, where we find an enormous amount of excessive subdivision resulting in loss both to individuals and to society. The individual loses by putting his money into an enterprise which may presently become bankrupt or through which he may suffer a loss, either total or partial, even though the enterprise itself does not fail. To what extent there is a social loss from the over-expansion of the urban area, which is really not called for by the urban demands, from taking land over from agricultural use, it is impossible to say. No one knows how great the unoccupied and uncalled for urban area may be. The most serious loss would be due to the large expenditures involved in laying out suburbs that are not needed. This is a very serious matter. We cannot, however, enter further into this matter for it would take us too far afield into urban land problems.

Then there is the problem of maintaining a balance between present and future uses. A land policy should take account both of present needs in relation to population and of future needs in terms of carefully estimated increase of population. The unbalanced situation which results when production is over-stimulated is peculiarly disastrous in the case of land. Land is slow to respond to changes, particularly changes in price, and this is of great economic significance. Take the case of agricultural land, if prices should drop suddenly between planting and harvest, the farmer is helpless to act to meet the situation. He must harvest the crop he has planted and take the consequences. Production on the land cannot be curtailed as easily as production in other industries. In some measure the present agricultural distress in the United States is due to the cumulative effect of continuous stimulation of agricultural production, plus the concentrated pressure brought to bear on agriculture during the war. Once brought into utilization, the land factor is more likely to remain in operation than the other factors of production, and this is true for all types of land utilization, whether agricultural or urban. We have here, then, an added reason for careful consideration of both present and future land needs from a national point of view.

The third problem of balance is between agriculture as a whole

and other industries. That such a lack of balance exists at the present time is seen in the disturbed price ratio; *i.e.*, the ratio between the prices at which the farmer sells his products and the prices which he pays for the things he buys. The present ratio is less favorable to the farmer than it was in 1913. In so far as the unfavorable price ratio is due to an unwise utilization of the land, it suggests another angle to the problem of land planning.

A national land policy means national land planning and recognition of this broader scope of planning is steadily growing. We are progressing beyond the stages of city, regional, and state planning to national planning. As evidence of this trend we may cite a recent conference called by the Federated Societies on Parks and Planning to consider the basis of a sound land policy for the nation. It may also be mentioned here that a still higher ideal is to be sought—namely, world-wide planning with respect to natural resources. Such a step would remove one of the primary causes of international conflict and contribute to a more lasting condition of peace.

Land planning is thus rightly considered to be central and pivotal in land economics. It furnishes a key to some of our most difficult problems. The relation of land planning to the problem of balance is obvious. Planning may have further beneficial influence in reducing costs involved in land holding and land utilization. Planning and classification, based on scientific research, are thus the necessary guides to proper utilization of our land resources.

No one familiar with the current problems in city and country can fail to appreciate the significance of land utilization and other topics discussed in land economics. The whole middle west is greatly disturbed now by low prices of agricultural products. One of the causes for distress in agriculture is the unwise utilization of land, one of the results of which is relative overproduction of certain staple, agricultural crops. Another form of unwise utilization of the land is seen in the fact that we find farms that are too large and farms that are too small, resulting in uneconomic production.

When we turn to cities and study their growth we find unwise utilization of the land, causing inconvenience and enormous daily losses, as well as countless human tragedies. Take, for example,

the undue expansion of the urban area which is responsible for enormous waste and in many cases the losses of the savings of a life time. We need not dwell further upon the importance of the topics which we take up in land economics.

The question can be asked, whether, so far, any valuable results are being obtained either in theory or in practice. It is believed that the discussion that has been begun is going to lead to correction and amplification of economic theory, although we have barely made a beginning.

An effort has been made to get away from the old dogmatic treatment of the rent of land by approaching the subject from the point of view of cost and income in land utilization. We find that land which is utilized yields an income. That is one side of the ledger, but what about the cost element—that is the other side. We have also taken over from public utility economics the idea of historical cost. When this method is pursued, it is difficult to find any peculiar or special surplus. Such statistical inquiries as have been made indicate rather a relatively low income on the investment in land; but we need a great deal more research than we have at the present time.

The more recent theory of land income holds that land yields an income substantially of the same character as other forms of income. According to the older theory of land income or rent, it was a peculiar type of income, a differential, unearned surplus, arising from the superiority of some land over other land. Instead of a single margin from which rents are measured, we now find many margins. Moreover, these margins do not have the same significance in fixing rent, for the newer theory tends to regard land income as determined by about the same forces and considerations that affect the income from any other economic good. Thus the income from land depends upon the prices that will be paid for the products and services of land, and these prices in turn are affected by the innumerable factors determining prices in general.

The income from land is not entirely a monetary return, although it is commonly so reckoned in most transactions involving the transfer of landed property. When considered from the point of view of consumption as distinguished from production, a considerable part of land income is in the form of amenities or psychic income. By amenities are meant beautiful scenery, a

pleasant neighborhood, congenial neighbors, and all other qualities which add to the pleasure and comforts of living. The amenities arise mainly from the use of land for residences, either urban or rural. In some cases a considerable part of the value of land consists of so-called "amenity value." This does not hold true in the same degree in the case of most other forms of income.

In this connection it will be seen that land economics, which has been developed largely as a result of observation, statistical inquiry and research, is reaching conclusions in regard to the income of land similar to those formulated years ago by Professor John Bates Clark. Now Professor Clark's works give a splendid illustration of deductive reasoning of a high order. It should be particularly gratifying to Professor Clark to find that some of those who started out, as the present writer did, with views very much opposed to his have been forced by their own independent researches to approach his views. The writer would not say that he has reached entire agreement with Professor Clark. He has come far closer to an agreement and acknowledges a growing appreciation of the work that Professor Clark has done.

One of the things that is urgently needed in the interest of theory and practice now is careful research into the increments in land values and their causes, as well as into decrements and their causes. Some investigations have been conducted in New York City, showing that through a long period of years the increments in vacant land values were less than the rate of interest paid on deposits in savings banks. We find very generally in economic treatises, and especially in popular discussions, the idea advanced that an increase in population means an increase in land values. The researches that have been conducted do not bear this out. So far as urban land is concerned, there may be a very considerable increase in population with stationary or even declining land values. With growing population we may have a fall in the value of agricultural land. The general principle is clear and may be stated as follows: In a dynamic society we learn how to utilize better and better the surface of the earth. Consequently, with a stationary population land values will decline. The force acting in the other direction is the growth of population. In recent years particularly in the United States, although it is also true in many other countries, improved methods

of the utilization of land in agriculture have more than offset the growth of population. This has in general been true with respect to the world as a whole, and this is one of the causes of agricultural distress.

In Chicago and in New York City great attention has been paid to very high land values, while little attention has been paid to declining and low land values. The prepossession of economists, and for that matter the general public, is seen in the frequent use of the term unearned increment with but little use of the term unearned decrement. We simply do not know the facts that we should know. A vast amount of research is needed to give us an adequate knowledge of the facts. We do know, however, that decrements are great and significant, as well as frequently disastrous. At a meeting of the Chicago Regional Planning Association held about two years ago one of the speakers stated that in his belief decrements in land values in Chicago in recent years had equaled increments in land values. The present writer would be inclined to doubt if that would hold good just now. But here again we do not know the facts. We do know that there are many attractive towns and cities in the country where, as the saying is, one can scarcely give away land, and where it will not yield what it has cost to bring it to its present state of ripeness for utilization.

The term ripening costs in land utilization is new. It cannot be found in any treatise on general economics, and yet it is something of great significance both in theory and in practice and unquestionably must modify more or less the popular ideas in regard to the income or rent of land. Ripening costs which are a common feature of business generally have not been thoroughly analyzed with respect to land. Broadly conceived, ripening costs occur when land is ripening from one use to a higher use, for it takes time to change from one use to another. They consist of expenditures made, or income sacrificed, during this period. If the holder of the land is a private individual, the costs are in the form of taxes, special assessments, and interest foregone, which must be paid or sacrificed even when there is no income from the land. These costs of ripening use are particularly significant in the case of land because of the large investment and longer period of time required to change from one use to another.

Normally all costs are expected to be paid eventually out of the income from the use of land. With land, however, we observe that many people are induced to meet the ripening costs by the expectation of recoupment out of an increment in land value. From this observation is formulated the so-called law of ripening costs in land utilization. *The costs falling upon the holder of land during a period of ripening use are socially necessary and are properly chargeable to the increment in land value resulting from the change in use.*[1]

Valuation of Land. The valuation of land implies the making of an estimate of the expected net income from the use of land over a period of years. In England the value of land is often expressed as "twenty or twenty-five years purchase" of an annual income. In the United States the expected series of annual incomes is summarized in one figure which represents the present value of the succession of incomes and is called the capital value or selling value of the land. This process of capitalizing land income into a capital value is considered the heart of the problem of land valuation.

The value of land is the sum of the present worth of future incomes. Since men are so constituted that they are impatient for income, these future incomes are less desirable than a present one, and consequently are discounted. The rate of discount or rate of impatience for the community is usually the prevailing rate of interest. However, the rate of impatience may vary with practically every individual. Usually complicated methods of calculation are dispensed with and the annual income is divided by the rate of discount, the quotient being the capital or selling value of the land.

Further complications in the valuation process are introduced when the future incomes or the rate of discount are expected to increase or decrease as time goes on. Moreover, it is recognized that market values do not always coincide with values determined by this method of capitalizing the net income, because various personal and psychological factors sometimes disturb the cal-

[1] A parallel in public utility economics is found in the "net deficit theory" by which losses sustained during the period of developing a going business are capitalized into the rate base.

We should examine also whether the recoupment of ripening costs out of value increments is not merely another way of saying that the common practice is to discount income expectations in order to meet the heavy expenses of developing the services of land into a going business.

culations. Such disturbing factors are the pride of ownership which will induce many people to accept a comparatively low rate of return upon land investments, and departures from perfect competition due to the influence of such institutions and forces as custom, monopoly, and public authority.

In view of the importance of guiding present valuations and activities by estimates of what the future will bring, a large part of economic thought is being devoted to the problems of forecasting prices, values, and trends of utilization. Forecasting is not peculiar to land economics; in fact, an interest in scientific forecasting of land values has followed a similar interest in the field of business economics. Being such a new part of the science of land economics, forecasting has not been developed much beyond the point of indicating the kind of data on which forecasts should rest. An adequate statistical basis is still lacking, but will probably be an outstanding development in the future.

In forecasting land values a distinction is drawn between the short-time and long-time movements of values. The short-time fluctuations are usually restricted to small areas and do not affect generally the long-time movements. Forecasting for long periods of time concerns itself with those factors which affect the economic supply of land and the demand for land, or the demand for the products and services of land which amounts to the same thing. The factors that are most emphasized as affecting the demand for land are: growth of population, development or decay of industry and commerce, communication and transport, quantity and quality of public improvements, the purchasing power and standard of living of the people, the habits, customs, and fashions of buyers of the products and services of land. The economic supply of land is affected by such factors as the development of means of transport, improvements in the technique of land utilization, and the quantity, quality, and efficiency of labor. The relation between some of these factors, so far as it has been ascertained up to the present time, has already been stated as a general principle of land values. It may now be stated as a more formal definition as follows: *Other things remaining equal, in a progressive society, one in which the technique of land utilization is improving, with increasing wealth and stationary population, land values will decline.* Specific exceptions to this general rule can, of course, be pointed out.

Ownership of Land. Land tenure as a part of land economics deals mainly with the human relationships involved in systems of property rights and with the effect of those relationships upon the utilization of natural resources. On the basis of this analysis certain policies of land tenure find general acceptance. From the historical point of view the evolution of land systems is traced with special emphasis upon the relations between landlord and tenant, the economic effect of enlarging or contracting the sphere of public and private property, and the economic desirability of extending or curtailing the social side of private property, referring to the public control of private rights to use land.

The prevailing sentiment of land economists is distinctly favorable to private ownership of most types of land, particularly agricultural and urban land, with some measure of public ownership and a still larger measure of public control over private rights. The attitude toward tenancy is that public tenancy in these classes of land is on the whole undesirable, but that some private tenancy is both desirable and normal.

Real progress is being made in getting at principles underlying agricultural land tenure. The Bureau of Agricultural Economics of the United States Department of Agriculture and some agricultural colleges have made some careful studies in regard to tenure and ownership of farms. The Institute for Research in Land Economics and Public Utilities is conducting very detailed and minute inquiries in regard to tenancy and ownership in selected areas, taking, for example, a section where there is practically no tenancy and other sections where there is a large amount of tenancy. It has also given some attention to the inheritance of farms. Instead of broad and misleading statements to the effect that tenancy is an evil, we know something about its proper place in a desirable system of land tenure and have some ideas as to what may be a desirable amount of tenancy and also as to what is good and bad tenancy.

The ideal policy is to encourage home ownership and owner-operation of farms, using tenancy, which is properly regulated in the interests of both tenants and landlords, as a means of reaching the status of ownership.

While we do know something about tenancy and home ownership in rural districts, we know very little of scientific value about home ownership and tenancy in cities. What proportion

of dwellers in cities are tenants? What proportion are owners? In what age group do tenants and owners fall? Do we find, as in the case of farms, an increasing proportion of ownership as age increases? These are some of the subjects which are calling for investigation by land economists.

Private ownership of land is in general the strongest inducement to rapid development and efficient use. But sometimes the inducement is so strong that private owners exploit natural resources to the detriment of the public interest. Then it becomes economically and socially desirable to extend the sphere of public ownership or to curtail the "intensivity" of private rights without establishing full public property. This has been the general tendency in late years. By way of illustration, economists find that the timber of the United States is being cut four or five times as fast as it is being shown. Forest land in the United States is largely privately owned. Since it is being exploited under private ownership in this country, the weight of scientific opinion has been thrown in the direction of extending public ownership of forest land. For similar reasons a considerable area of land used or useful for highways, water power sites, parks, etc., has passed from private to public ownership. Public ownership is regarded as most conducive to the conservation of natural resources.

Where the public need is not overwhelming, and where the effects of the misuse of privately owned land are limited to a relatively few individuals, the prevailing opinion is in favor of public regulation of private rights. This social side of private property also has developed rapidly in recent years, particularly in the centers of population. Most economists will be inclined to support properly-drawn city planning and zoning laws, in so far as they aim to stabilize land values and to economize the use of land. An instance of the relation between ownership and the regulated use of land is found in the increasingly perplexing traffic problems of the largest cities. The economist points out that adequate relief for traffic congestion represents a variety of very complex problems. Building subways and three-deck streets may simply attract more people and induce the construction of buildings of a kind to promote congestion, and thus make the problem worse than it was before. It is also found that it is not enough simply to restrain land owners from building skyscrapers.

Further research in urban land utilization and in modes of urban transport is needed before a complete theoretical solution can be reached, and, of course, after we know what ought to be done there remains the problem of getting it done because of politics and administrative difficulties. Incidentally it may be pointed out that one of the causes of the successive and too intensive utilization of land is found in the high taxation of land itself. It has, indeed, been suggested that to lessen the tax on the land in case of too intensive utilization and to put a higher tax on the improvements on the land would bring about an improvement. Without going further into this subject, it may be said that the growing tendency of public control of private rights to use land has found expression in a so-called principle of social control: *The more intensive the use of land, the more highly developed must be the social control.*

The general principle of guidance in changes from private to public property and from public to private property has been formulated as follows: Private property yields best results when the social benefits of private property accrue: (1) largely spontaneously; (2) when occasionally they are easily secured by slight applications of force; (3) when the social benefits of private property are secured as the result of single public acts occurring at considerable intervals; (4) when in more or less frequent cases a continuous and considerable application of force may be needed to bring its management up to a socially established ethical level. In proportion as the social benefits desired are secured by increasingly intensive and increasingly frequent applications of public power, the advantages of private property become smaller as contrasted with the advantages of public property.

Taxation of Land. The taxes upon land which constitute the government's share of the income from land are receiving an increasing amount of attention from economists because of the influence of taxation upon the utilization of natural resources. In recent years the tendency has been for the government to take in taxes an ever larger proportion of the income from land. Due to inequities in the general property tax system in the United States, this tax burden has borne more heavily on land than on other forms of property.

Forest Taxation vs. Forest Land Taxation. The uneconomic outcome of the wrong method of taxation is clearly seen in the

case of forest land. With present practices of taxation, forest land is usually taxed under the general property tax, like agricultural land. Since forest land produces an income-yielding crop only once in from 50 to 150 years, every inducement is offered to cut the timber and get rid of the land as fast as possible, thus avoiding an accumulation of taxes while the land is yielding no income. Except for fast maturing trees, land suitable for growing forests is not reforested because of the heavy tax burden on private owners. This situation has prompted many economists to recommend a revision of forest taxation policies and a greater amount of publicly owned forest land.

The theory underlying the present system of taxing land under the general property tax in the United States is founded ostensibly on the "ability-to-pay" principle. Ownership of land signifies saved wealth or the possession of the ability to pay taxes. With the increasing expenditures of local governments, particularly for general welfare purposes, these savings in the form of landed property have been called upon to make heavy contributions. At the same time expenditures for consumption are almost untaxed, relatively speaking. Many economists are calling attention to the fact that this puts a premium on spending and a penalty on saving. In other words, this inequitable distribution of taxes between savings and expenditures is rapidly approaching the point of encouraging consumption and discouraging productive savings. Consequently, there is considerable scientific support for the view that some of the heavy direct taxes upon land should be transferred to indirect taxes upon certain forms of consumption, *i.e.*, that a broadening of the base of taxation is necessary to avoid confiscation of land values.

There are many other phases of land economics that represent new developments. The last word has not been said on any phase of the subject. As to what extent the theories that are being elaborated are modifying and enriching economic theory, the future will have to decide. As research into the facts continues, we expect that land economics, in practice and in theory, will be considerably revised. Only a beginning has been made. But the demand for new knowledge about land and the human relations focussing on the land encourages all those working in the field to push ahead to new levels of accomplishment.

CLARK'S REFORMULATION OF THE CAPITAL CONCEPT

Frank A. Fetter

1. *Statement of Clark's Doctrine*

The eightieth anniversary of the birth of John Bates Clark, our honored master in social philosophy, calls renewed attention to those economic issues in the discussion of which he has had a most vital part.

As a humble contribution to the volume which his fellow economists here bring as token of their regard, I would essay to review Clark's reformulation of the capital concept, and to trace its continuing influence upon economic opinion. No one can say what its total effect ultimately will be, but we may now form some judgment of its logic and of its aptness in practical discussion, and of the measure of acceptance which it has up to the present attained in America and England.

It is almost forty years since the publication of Clark's monograph entitled *Capital and Its Earnings*.[1] Hardly larger than a magazine article, (merely 61 pages of text) it is yet one of the important milestones in the history of American economic theory, and likewise marks significantly new interests and a new stage of development in Clark's own thought. He was then in his forty-second year and had, since the age of thirty, been contributing toward "the reformulating of certain leading principles of economic science," through occasional magazine articles. These were "republished with varying amounts of revision and the discussion extended" in his first book, *The Philosophy of Wealth*, in 1885. While the work of that decade shows Clark to be, in his own words, "in revolt against the spirit of the old political economy," unsatisfied with its "defective" premises and its "degraded conception" of human nature (mere selfishness), and discontented with the actual relation of "capital" (the

[1] May, 1888, in *Publications of the Amer. Econ. Asso.*, Vol. III, No. 2.

employing class) with "labor" (the wage earning class), it gives no hint or warning of the author's purpose to replace with a new conception the conventional notion of capital as an economic factor of production. That came in 1888 seemingly out of a clear sky.

Let us first restate, as briefly as we can, just what the thought was, and then seek to account for its appearance at that time. The more essential points in which Clark departed from the then prevalent views of capital may be reduced to five. He said:

(a) The conventional capital concept is ambiguous, meaning both "pure" capital and concrete "capital goods."
(b) "Pure capital," is a fund of value.
(c) Land in all its forms is a part of concrete capital.
(d) All concrete goods yield rents.
(e) All pure capital yields interest.

(a) Clark declared that economic science had and was using two unlike conceptions of capital, while believing that it had but one. Hence ambiguity, confusion, "logomachies." Clark would frankly accept both concepts, clarify them, and distinguish them by somewhat different names. One is the abstract, the other is the concrete concept. The abstract conception, paradoxically, is the one "employed in business a hundred times where the concrete conception is employed once"; [1] whereas "the actual practice of economic science has been to first define capital in the concrete, and then, in the problems connected with it, to tacitly substitute again and again the abstract conception."

(b) Clark calls capital in the abstract sense "pure capital," which is a "fund," a "single entity" common to all the concrete forms of capital. This fund or entity is expressly declared to be "effective social utility," but this mysterious notion is repeatedly spoken of more simply though somewhat puzzlingly as "the value that a business man invests" in the various instruments and materials he uses. This is the value conception of capital in contrast with the concrete goods conception as defined by the conventional definition of the older political economy.

(c) Clark classed as concrete capital not merely the artificial, humanly "produced means of production," but all instruments and materials, including land and all other natural agents.

[1] *Op. cit.*, pp. 11-12.

(d) Clark correspondingly widened the meaning and application of the term rent beyond that of the orthodox English economics, making it apply to the "sums earned by outward and material instruments of production" of any and every kind, *i.e.*, the earnings of concrete capital. The rent law is universal.

(e) Clark called the earnings of "pure capital" interest, and he conceived of this as rent (value) expressed as a percentage of the value of the abstract capital. Thus interest, as Clark wished to express it, did not consist of uses, yields, earnings, or incomes other than those composing rents, but simply was rent, expressed as a price in relation to the price of the instruments that embody the fund.

That these ideas appeared at that time to be radical novelties in American and English economic theory, is evident. The vigor and incisiveness of their statement helped them to command immediate attention even from those who were not ready to accept them as true. It must have been obvious that their acceptance would involve sweeping changes in the structure of the then accepted theory of distribution, with its sharp division between (natural) land and (artificial) capital as factors of production, and between rent (of land) and interest (on capital) as forms of "earnings" or incomes. Clark himself began at once to shape and build a structure of distributive theory but faintly forecast in his earlier essays, and increasingly to this day these ideas have exercised an influence upon theoretical opinion.

2. *Possible Sources; the American Tradition*

Ideas departing so far from prevalent opinion rarely if ever spring as pure inventions of the moment from one mind. Nor does a change in the content and direction of an individual's thought, as marked as that of Clark at that time, occur without some influence from other thinkers or from environing conditions. But to trace such influences to their sources seems, in the case of Clark, at first unusually difficult. His literary style is didactic rather than polemical, and his thought seems to move along positive lines hardly at all conscious either of his forerunners or of hostile opinions, once he has formulated his own views. His writings give slight internal evidence of the sources of his thought. In the monograph in question the only references to the opinions of others are in minor matters, in three cases dissenting,

(from Ricardo, J. S. Mill and Sydney Webb) and in three approving, (A. Smith, S. N. Patten, and Clark's co-worker, Giddings). The sources or the starting points of Clark's own thought must be sought more widely in the circumstances of his life and of his surroundings.

The first possibility might seem to be close at hand in the fact that Clark was an American. A scholarly study has recently shown [1] that with few exceptions writers on economics in the United States from Raymond in 1820 to Perry in 1877 (including Phillips, Wayland, Vethake, M. Wilson, Cordoza, Tucker, Carey, and Amasa Walker) defined capital as privately owned means of production, emphasized its valuation or price aspect, and included land among the concrete goods in which this value was embodied. Some of the exceptions serve to prove the rule, for these exceptions were men of English training or faithful disciples drawing their ideas directly from Ricardian text books. Such unorthodox views arose naturally in America where were lacking the artificial feudal legal limitations upon the sale of land, and where landholders were not marked off socially from capitalist merchants as a separate class. Here land was readily bought and sold and was from the earliest settlement the chief object of investment with a view to speculative profit. This environment had prompted one American writer after another (apparently without mutual influence) to develop conceptions radically different from those of the English school. It might have likewise prompted Clark quite independently to his very similar thought. And there were particular circumstances at the time Clark was writing, namely, the active discussion of Henry George's single tax proposal, which undoubtedly had directed Clark's attention strongly to this problem of the capital concept. Of this, more later.

But if Clark got this thought either directly or indirectly from American economists, it is not evident in his writings. The generation of young economists who in the seventies and early eighties brought a new spirit into American economic studies, did not develop the indigenous traditions, but unfortunately neglected them and turned to Germany for the new sources of their inspiration. At the same time there was in some quarters

[1] J. R. Turner, *The Ricardian Rent Theory in Early American Economics*, 1921.

(*e. g.*, Dunbar, Macvane, Laughlin, Sumner) a reactionary movement toward a new affirmation of Ricardian "orthodoxy" as reformulated in the work of J. S. Mill. Even Francis A. Walker did not develop his father Amasa's more original American treatment, but built his scheme of distributive theory on the older foundations of "land, labor and capital." There was thus, in the thinking of both the rival schools of thought of that time, a lack of reality and of rootage in the solid earth of our own economic conditions. American economic theorizing suffered then and still suffers from this defect. Clark's reformation of the capital concept, though couched in excessively abstract phrases, was the most vital attempt made in that period to find that reality. It was a new and distinct declaration of independence for American economic thinking.

3. *Traces of German Economic Philosophy*

Almost equally lacking in Clark's writings are any suggestions that the ideas now under discussion were derived from German sources; but that such is the case can hardly be doubted in view of all the circumstances. Clark was a student in Germany in 1876-1877 and was for a considerable period at Heidelberg under Karl Knies. Clark's writings in the first ten years after his return, mostly embodied in his *Philosophy of Wealth*, evidence the deep influence of the ideas of the historical school and of the economic-ethical doctrines then current in Germany. Knies himself had published in 1873 *Das Geld* subtitled also "a discussion of capital"; a second, enlarged edition of this was dated 1885. In this work appears a conception of capital strikingly like the one of Clark which we are examining. This conception had become traditional in German economics after the original work of Professor F. B. W. Hermann [1] first began to exercise an influence upon German thought. Hermann based his capital concept on property,—though it cannot be said that he succeeded in clearly distinguishing the thought of the value of property from the thought of the concrete goods. He included not only land within the concept of capital, but also immaterial goods or legal rights to income, even though the claims were upon persons and to services, and not to material goods. Probably the greatest change made by Herrmann was to extend the definition of capital beyond

[1] *Staatswirthschaftliche Untersuchungen*, etc., Munich, 1832.

artificial, produced, goods and to include as capital anything (or at least its value) that is the durable foundation of a use that has value.

Very similar ideas were developed by Carl Rodbertus in the thirties and forties, most significant because of the great influence they exercised upon later thinkers in the period of developing German state socialism after 1870. Especially Adolf Wagner acknowledged his profound indebtedness to Rodbertus.[1] To Wagner is due the much wider circulation and influence in the last quarter of a century of these ideas which he restated and endorsed.[2] Wagner credits Rodbertus with "the essential distinction between capital in the purely economic sense as any stock of material agents and means of production, and capital in the historico-legal sense as capital-possessions." He cites the statement of Knies that political economy uses capital in two senses, as concrete means of production, and as a stock of goods acquired by an owner. Both Wagner and Knies recognize the double meaning of capital as a tool in economic processes (technological sense) and as a source of private income (acquisitive sense), the distinction on which so much of the thought of Thorstein Veblen as well as of Karl Marx, seems to have been based. When Knies says approvingly that what has been called capital is "fundamentally nothing but a mere abstraction," [3] the expression might be the original of Clark's "entity," "this abstract conception of capital." [4]

Clark, in common with all other Americans pursuing graduate economic studies in Germany, must have become familiar with these ideas. Yet why did no trace of them ever appear in the writings of other students returning from Germany, or even in Clark's writings, until 1888? Is not the explanation to be found in the fact that Americans went abroad with minds already cast in the mold of the Ricardian-Mill "orthodox" scheme of distributive theory, and these concepts persisted. It was possible for these students to acquire a zeal for displacing (or for supple-

[1] The ideas of Rodbertus on capital are scattered throughout his writings, but perhaps more systematically presented in his work *Das Kapital,* written 1850-51 but published first in 1885 by A. Wagner and T. Kozak. (Known to the writer only in the French translation, Paris, 1904.)

[2] See Wagner's *Grundlegung,* 3rd. ed., 1892, p. 307 ff.

[3] Knies, *op. cit.,* p. 43.

[4] Clark, *op. cit.,* p. 11.

menting) deductive methods with historical studies, and in favor of state activity vs. laissez-faire, without any essential change in the old conceptions of the economic factors and shares in distribution. This is well illustrated by H. C. Adams, R. T. Ely, and many others besides Clark. The more difficult question to answer is: Why did Clark ever, and why did he alone, break through this crust of conventional ideas, and in 1888 advance the views, received as complete novelties, with which his name has ever since been linked.

The important eras of human thought, we are assured by philosophers, rarely, if ever, are initiated by entirely new ideas, but by the rediscovery and restatement of old ones. Therein consists the more effective originality. It has been said, perhaps extremely, that the first time a new thought is expressed or an invention is made, the world simply pays no attention to it. Not until it is repeated independently and rediscovered a hundred times, and then only under peculiarly favoring conditions, does the world look up and say: yes, there is something in it, but nothing original—indeed it is very old. Until the world has received an idea in this way, its rediscovery for the hundredth time is as original as its discovery the first time, and its mere restatement by one aware of its earlier origin and rejection, calls, for that very reason, for as great vigor of thought, and for faith and conviction.

4. *Effects of the Single Tax Agitation*

The probable source from which immediate stimulation came to Clark was the contemporary single tax discussion. Started in 1879 by the publication of Henry George's book on *Progress and Poverty*, it gained within a few years the most remarkable vogue in popular interest. It attracted at once the attention of leading economists. Professor W. G. Sumner attacked it in 1881 in magazine articles.[1] Professor Francis A. Walker, who seems to have been stirred to indignant protest particularly by George's proposal to confiscate land values, made it the subject of a series of lectures at Harvard in 1883, published under the title of *Land and its Rent*. But Clark, until after the publication of his first

[1] See Dr. A. N. Young, *The Single Tax Movement in the United States* (1916), *passim*. Prof. R. T. Ely noticed it in his *Recent American Socialism* in 1885.

book *The Philosophy of Wealth,*[1] and apparently until 1888, gave it no mention in his published writings. The chief theoretical pillar of George's doctrine was the Ricardian rent theory, and Walker, even while assailing George, had avowed himself to be "a Ricardian of the Ricardians," declaring that "Ricardo's rent doctrine can no more be impugned than the sun in heaven." [2] He would have none of Bastiat and Carey, who had sought to reduce the origin of all land values to labor. Yet Walker somewhat unconventionally treated capital in the aspect of value as "a capital sum" to be invested [3] as well in land, "in the soil," as in agricultural improvements, and not as any particular group or kind of economic agents. No formal definition of capital in the old terms of "produced" means of production appears, yet Walker is not conscious of any departure from "the general body of orthodox economic doctrines," the "validity" of which he thinks he is merely confirming.[4]

Events were just at that time crowding each other fast in the single tax propaganda. *Progress and Poverty* was translated into many languages and was said to have had a larger sale than any other book ever written by an American. In 1886 George was nominated and ran for the mayoralty of New York City, and of the three candidates he polled the second-highest number of votes. In 1887 George was a candidate for the Secretaryship of New York State but was defeated. No other economic subject at the time was comparable in importance in the public eye with the doctrine of *Progress and Poverty.*

At this moment Clark stepped into the arena of discussion armed with a new weapon, a valuation, or investment, concept of capital. His little monograph wears the mien of pure theory, and lingers for a time as its author himself says "in a region of abstract thought." But having in mind the circumstances just described, one can hardly fail to see on almost every page reflections of the contemporary single-tax discussion. In the brief preface is expressed the hope that "it may be found that these principles settle questions of agrarian socialism." Repeatedly the discussion turns to "the capital that vests itself in land," declared

[1] Largely a republication of a series of articles the publication of which was begun ten years earlier. See preface to first edition.
[2] *Op. cit.,* p. 86.
[3] *E.g., op. cit.,* pp. 33, 34.
[4] *Op. cit.,* p. 86.

to be "a form of investment neither more nor less lucrative than others." On the ethics of confiscation Clark concludes that morally as well as legally "pure capital when invested in land, has the same rights that elsewhere belong to it." And as to confiscating all land values by the single tax, he exclaims: "would it be robbery? No; it would be the quintessence of robbery."

Two years later at the "Single Tax debate" at Saratoga, Clark developed in a very interesting way his ideas of pure capital as seeking investment in whatever form the State has said it may take. He sees it as a policy of expediency for the public welfare in the long run. The State "has said that it [capital] may go into land. For ends of its own it has so decided; and the ends are good."

But Clark felt that he had got hold of a deeper truth, more than a mere argument on a current issue. This monograph represents in most respects a completely new start toward a systematic theory of distribution which has little in common with his views in *The Philosophy of Wealth,* excepting "effective utility" (the marginal principle). It is needless to restate the argument of this well-nigh classical essay. Though brief, it is rich in ideas, and any one who has not read it will be well repaid by its careful study.

But read to-day, even by the most friendly critic, the argument reveals certain defects, partly arising out of its original polemical impulse, and partly due to the influence of the older conceptions upon Clark's thought. As to the latter, traces of the labor theory of value remain in the confusion between the process of evaluating "concrete instruments," including natural land, and the "personal sacrifices incurred in the service of society" in bringing concrete instruments into existence. When "the fruit of twenty years of labor" is exchanged for a piece of unimproved land, the value in the land is declared to embody "the fruit of personal sacrifice" of the buyer.[1] But whence came the value of the land before it was sold? Again, though including the most imperishable land among the things which embody pure capital, Clark sees the "concrete forms of capital" as constantly vanishing. "The bodily tissue of capital lives by destruction and replacement." In truth, Clark had not developed a consistent

[1] *Op. cit.,* pp. 55, 66.

capitalization concept, or made a clear distinction between, on the one hand, technical production as the source and origin of what he called "capital goods," and, on the other hand, financial valuation of rights, incomes, claims (to land and also to personal services, good will, privileges, etc., as well as to "artificial" concrete goods) as a source of his "pure capital."

Nevertheless, his great achievements in this matter were that he brought out into the open the old ambiguity between "capital value" and certain concrete things called capital, and that he presented "capital" as essentially an investment concept; and that he gave a broader reading to the idea of rent. These notions have been apples of discord, and even yet professional opinions have not attained to unity upon them. It is of interest to observe the position taken toward the value concept of capital by some representative economists.

5. *The More Conservative Views*

Böhm-Bawerk's conclusions on the capital concept were surprisingly old-fashioned. Beginning with a new conception of the so-called "interest problem" as that of differences of the value of goods because of time, he wrecked his attempt at the very first by his conception of capital (goods) as limited to produced means of production. For if, as he believed, "capital" and interest are coextensive facts, he cannot explain with such a capital concept the manifold time differences that appear everywhere, in land uses, legal rights, financial incomes, human services, etc. On no other point did Böhm-Bawerk differ with Clark so categorically as on this; he would have none of the valuation concept of capital.[1] Not even the most conservative of his contemporary neo-Ricardians were so uncompromising on this point. Yet not for a single page does he succeed in avoiding the valuation concept of capital when once he begins to use one. His capital is always an investment sum, expressed as so many kronen, pounds sterling, or dollars.

Professor Taussig devoted large space in his text to the discussion of the capital concept, returning to it again and again,

[1] See the discussion, *Quarterly Journal Economics* (1895-1896), Vol. 9 (Clark), p. 238; (Böhm-Bawerk), pp. 113, 235, 380; Vol. 10 (Clark), p. 98, (Böhm-Bawerk), p. 121.

evidently troubled and more or less impressed by nearly every count in the newer criticism on this subject. It seems a just characterization to say that Taussig's general conclusions and position resemble somewhat those of Marshall, outlined below, but show certain significant differences. First, he is somewhat more definitely conscious that the adoption of the valuation concept involves a radical break with the older doctrines. Secondly, he therefore more explicitly (though with various concessions and doubts) adheres to the older formal definition of capital in terms of concrete goods, and to the older idea of the two-fold division of the "instruments of production and the different sorts of return to their owners" (*i.e.*, land and capital, rent and interest, respectively).[1] Third, he, much more explicitly than Marshall, reaffirms a pretty bald labor-theory-of-value to account for the origin and distinctiveness of capital (concrete),[2] conceived of as "artificial" in contrast with land as "natural." In accord with this thought, he (probably unique in this regard) denies "productivity" alike to capital and to land, and thinks labor alone can properly be said to be productive, more so to be sure if applied "through the use of tools" than without them, more applied "on some land . . . than on other land," but in any case it is always labor alone that has "productivity." [3] Fourth, far more than Marshall, he struggles to escape from the meshes of the inevitable valuation concept. He sees, as Marshall did not, that he is being trapped into a repudiation of the older views. He was forced to recognize that "the ordinary business method of measurement" of capital is "in terms of value." He confesses that the old distinctions between rent and interest "find no response in the world of affairs." [4] Earlier [5] he had recognized that it was "often convenient to measure and record capital in terms of value and price,—as so much money," and he had even issued fair warning that he would "sometimes" so far conform "to everyday terminology" as to speak of capital in terms of its "value or price." (Of course, he always does express capital in those terms whenever he discusses investment of capital and interest as a rate per cent of return—no one can do otherwise.) Yet he explicitly rejects the "valu-

[1] *Principles of Economics,* 1st ed., 1911, Vol. 2, p. 115.
[2] *E.g.,* Vol. 1, pp. 72, 75; Vol. 2, p. 119 ff.
[3] *Idem.,* Vol. 2, pp. 5-8, 58.
[4] *Idem.,* Vol. 2, p. 118.
[5] Vol. 1, pp. 84, 85.

ation principle" [1] and indicates what he thinks are its absurdities.[2]

Professor Seager, a colleague of Clark's at Columbia, acknowledges in the preface of his text his indebtedness to writers so far apart as Böhm-Bawerk, J. B. Clark and Alfred Marshall, and his treatment of this particular question betrays some of the discordant results. He seems to accept both the old view and in part that of Clark. He defines capital as "the product of past industry used as aids to further production." [3] Yet he cites, apparently with approval, the business man's use of capital as "the complex of capital goods, used in connection with each branch of production, measured in terms of money," [4] a valuation investment concept. But he does not, as did Clark, include land among "capital goods"; these are purely artificial things, "products of past industry," [5] thus plainly differing with the business usage cited. Seager was insistent on keeping sharply distinct the two classes of concrete goods (land and capital goods) which represent "man's part in production and nature's part." [6] Soon, however, Seager is found talking about buying land, quite in the sense in which the business man speaks of the purchase of other goods, as an "investment" involving the "capitalization of rents." [7]

6. *Marshall's Eclectic Capital Concept*

In the first edition of his *Principles* (1890), Alfred Marshall was well aware of the issue before us, and gave it a good deal of attention. He showed acquaintance with J. B. Clark's work of two years earlier,[8] with Böhm-Bawerk, Newcomb,[9] and the several German economists above named, who contrasted capital

[1] *Idem.*, pp. 121-123.
[2] In part his objections result from his not seeing the full import of the principle; however, his objection to Professor Irving Fisher's view of capitalizing human beings is in my judgment well taken. The reference to my text at this point in the 3rd edition (1921) is misleading. (Vol. 2, p. 126)
[3] *Introduction to Economics* (1904), p. 108.
[4] *Idem.*, p. 126, and, in revised form, *Principles of Economics* (1913), p. 14.
[5] *Principles*, p. 148.
[6] *Idem.*, p. 149.
[7] *Idem.*, p. 239.
[8] *E.g.*, note p. 615; and specific reference to Capital and its Earnings in note, p. 492.
[9] *Idem.*, p. 137.

as ownership and as means of production.[1] Marshall listed with approval a veritable catalog of definitions mutually inconsistent, but admitted that the divergent usage "has been a great stumbling block to many readers" and "appears to land the science in confusion." He comforts himself, however, with the thought that "the difficulty is much less serious than it seems at first sight."[2] The plan by which he hopes to minimize the confusion, if not avoid it, is to adopt *two* standard definitions, one each for individual and social capital respectively (apparently following Böhm-Bawerk), and then (apparently forgetting that he himself has two) "to supplement his standard definition by an explanation of the bearing of each of several elements of capital on the point at issue." His definition of "individual capital is that portion of a person's external goods by which he obtains his livelihood"; and of social capital is "those things made by man, by which the society in question obtains its livelihood." The latter consists, first, of goods in a form to satisfy wants directly ("consumption capital") and, secondly, of production goods ("auxiliary capital.") He recognizes that individual capital "is most commonly taken to include land and other free gifts of nature," but this is to be left "to be decided by an interpretation clause in the context wherever there is room for misunderstanding on the point." He evidently here thinks of "capital" (either individual or social) as consisting of concrete goods rather than of their value or the purchasing power they embody; and both his "standard definitions" make capital consist of the external goods themselves. Later, in a chapter headed "The growth of wealth."[3] he discusses it as if it were identical with "the accumulation of capital" and to "the annual investment of wealth." It is almost needless to say that when he comes to discuss capital in business, it is in terms of investment and its monetary expression, while interest or earnings are percentages of a principal sum.[4]

In the successive revisions of his text, terminating with the 8th (1920) Marshall's discussion of this subject steadily increased in length and elaboration without gaining in clarity and consistency. On the whole, though, the change is in the direction of a greater preference for, and emphasis upon the individual concept (and

[1] *Idem.*, pp. 135-136.
[2] *Idem.*, p. 133.
[3] *Idem.*, p. 284.
[4] *Idem.*, pp. 513, 620 ff., 635, 648, etc.

its valuation expression) as compared with the social concept. The individual concept is now cited in the index as the "standard use" of the term,[1] and appears with this comment: "This definition of capital from the individual or business point of view is firmly established in ordinary usage; and it will be assumed throughout the present treatise whenever we are discussing problems relating to business in general." He concludes this chapter with admonitions to economists to "forego the aid of a complete set of technical terms," and not to assign "a rigid exact use to a word" as this "confuses business men"—astonishing counsel to budding would-be scientists.

Marshall's view as to the relation of land to capital is not easy to fix, but on the whole it seems to be that land is among the (concrete) things comprising *individual* but not social capital. *E.g.*, he says: "This illustrates the fact that land from the point of view of the individual cultivator is simply one form of capital." [2] Speaking more generally of manufacturers and traders as well as of farmers he says: "It is to be remembered that land is but a particular form of capital from the point of view of the individual producer." [3] Though Marshall here distinctly excluded land from capital from the social point of view; [4] nevertheless, only three pages later, still speaking of the social point of view, he says: "In purely abstract, and especially in mathematical, reasoning the terms Capital and Wealth are used as synonymous almost perforce, except that 'land' proper may for some purposes be omitted from capital." Are we to understand then, that for *most* purposes, land is by Marshall included in capital, at least land "proper," whatever that may mean, which here seems to mean "in the scientific sense," if it means anything?

The reader must take his choice among these contradictions, for his bewilderment will only be enhanced by further search amid the mazes of Marshall's tome. But, though Marshall's formal definitions of capital run in terms of concrete agents, there is no doubt that whenever he comes to discuss individual capital in problems relating to business in general he resorts to a valuation concept. The resources of an individual "are in the form of

[1] 8th ed., p. 72. But still, in his last word on the subject (p. 790), Marshall justifies his own adoption of "the two-fold definition of capital."
[2] *Idem.*, p. 170.
[3] *Idem.*, pp. 430-431. Also p. 535 *et passim.*
[4] *Idem.*, p. 78.

general purchasing power." [1] He declares that the idea of interest is strictly applicable only to fluid capital, evidently meaning readily available purchasing power. "The rate of interest is a ratio and the two things which it connects are both sums of money." [2] Thus it appears that after many contradictory assertions and formal definitions that reaffirm the older Ricardian scheme, Marshall really uses capital in nearly all his discussions of price and of business problems in his later editions as an individual (acquisitive) concept, expressed in (market) valuation terms. Yet unsuspecting students still are led to seek in Marshall a source of theoretical illumination instead of a smoke cloud.

7. *The Yale Economists*

The influence of Clark's views of capital showed itself at Yale within the following decade in the writings of A. T. Hadley and of his younger colleague, Irving Fisher. Hadley published in 1895 [3] a noteworthy article marked by an insight and a clarity in nearly every feature in advance of its date, and by a realism in advance of Clark's abstraction of an entity of pure capital. Hadley recognized both the broad social and the narrow individual conception of wealth, and the broad and the narrow conception of capital. "Individual wealth is more accurately designated as property." "The capital of an individual is more accurately designated as an investment." "A title to property is not necessarily productive as held by Clark." Here Hadley briefly, but in essence, anticipated what Veblen (and in part Davenport) developed many years later regarding the contrast between acquisition and production, while avoiding Veblen's exaggeration of the contrast and his caricature of the profit motive. Hadley's text *Economics* published the next year, reproduced in its first chapter (on Public and Private Wealth) the substance of this article, but with certain additions (unfortunate, in our view) involving, as Hadley says,[4] "a combination of the ideas of Knies and Newcomb," but for which he acknowledges his chief indebtedness to be due to his colleague, Dr. Irving Fisher.

The essential addition due to Fisher was a distinction between

[1] *E. g., idem.*, p. 411.
[2] *Idem.*, p. 412.
[3] *Yale Review,* Vol. 4, pp. 156-170, "Misunderstandings about economic terms."
[4] In a footnote, p. 5.

capital and income as "modes of measuring" which Hadley had come to believe "is almost as important as the distinction between public and private wealth" [1] which he had presented in his essay of the year before. This new distinction is, however, certainly more than a mere detail; it introduces into Hadley's earlier clear and simple thought of capital as the value of rights of individual ownership, a different idea of a *stock* of wealth [2] as contrasted with a *flow* of wealth. The latter was pretty clearly Fisher's own idea at that time, as appeared in his contemporary articles.[3] In these Fisher presented this distinction between a "stock," or a "fund," and a "flow," or a "stream," as the *one* essential test of capital, as he conceived it. He is intent (not as was Hadley) on distinguishing capital as valuation from wealth as objects (for he thinks of both simply as material) but in distinguishing income as a *flow of things* from wealth as a fund, reservoir or *stock of things*. There is not a hint in Fisher's definitions that capital consists of "rights" expressed in terms of monetary valuation, or financially, or of its being a sum of purchasing power, a business investment concept. Fisher specifically objects to Clark's expression of the amount of true capital in terms of price, instead of by physical measurements. However, as soon as he attempts to discuss the percentage rate of flow, he assumes the measurement of both stocks and streams in monetary terms, for in no other way could a percentage appear. Fisher's contrast was that between a stock and a stream of the "very same commodities." [4] The present writer soon afterward [5] sought to show that this view was untenable in that it overlooked the durative nature of many of the objects comprised in Fisher's material "capital," and involved the erroneous assumption that all indirect agents eventually appear in substance as direct (enjoyable) goods. However, when Fisher next expounded his definition, though he referred in no way to this criticism, he introduced alongside of the old distinction a new one designed to obviate the difficulty

[1] It would be a more accurate description of this distinction to say, using Hadley's own phrases: between public wealth as the sum of the "means of enjoyment" or "means of happiness," in existence, and private capital as the value of individual property rights.

[2] Material objects by Fisher's definition, *Nature of Capital and Income*, p. 3.

[3] *Economic Journal*, Vols. 6 and 7, 1896, 1897. A number of references to J. B. Clark's ideas occur in the three articles.

[4] *Op. cit.*, Vol. 6 (1896), p. 514.

[5] See *Quarterly Journal of Economics*, Vol. 15 (1900), p. 19.

with the unfortunate result that his unified conception is converted into the dualistic conception already foreshadowed by Hadley. This is the passage: [1]

> Capital is a fund and income a flow. This difference between capital and income is, however, not the only one. There is another important difference, namely, that capital is *wealth,* and income is the *service* of wealth. We have, therefore, the following definitions: A *stock of wealth* existing at an *instant* of time is called *capital.* A *flow of services* through a *period* of time is called *income.*

Now it must be said of these dualistic definitions that they are quite useless for the purpose in view. Fisher's own work on capital and income deals mainly with financial conceptions untouched in these definitions, incomes as price-quanta, discounted and summed up in capital (also a price quantum) conceived of as the present worth of claims to future monetary incomes, no matter whence or how derived (even from intangible rights). And the definitions are at least in part tautological, for while it would be logically possible (even though theoretically useless) to have a fund of wealth (material goods) and to contrast it with a flow of the same goods, it is not possible to conceive of a literal stock of services at an instant of time; it is possible only to conceive of their present worth as a financial fund at an instant of time. Services (taken in the sense of *uses* either of wealth or of human beings) may conceivably be delayed or hastened, but they are in their very nature a *flow;* they cannot be heaped up and constitute a *stock* of services. They can at most, as they occur, be "incorporated" in durable forms of wealth. If this is so, then why this elaborate contrast between a *flow* of services and a *fund* of something quite different? It is the vestigial remains of the older conception that Fisher has been obliged to discard.

The idea of a "fund" as a financial sum, estimate, or valuation, at an instant of time, has become confused with the idea of a "fund" as a heap or store of physical goods existing at an instant of time. The phrases of Fisher's definitions form a superficial, verbal bond of connection between the old conception and the new one, while in fact the essential distinction has become that not between income as a flow and capital as a fund (of the "very same" material things) but that between a valuation of services

[1] *The Nature of Capital and Income* (1906), p. 52. Italics in the original.

(incomes) when accruing separately throughout time and the valuation of those same services when discounted and summed up at an instant of time. Capitalization thus does involve a comparison of a financial fund (the single present worth) and a flow (a series of future worths) of the very same things, namely, valuations of services. Only through the common element, valuation, do capital as a valuation fund and income as a valuation flow become comparable.[1]

The text of Fairchild, Furniss and Buck, eminating from Yale, starts in the old paths, formally defining capital as a third factor of production, produced instruments of production. The tool, the indirect agent, seems to be the typical capital in mind in the historical survey, and the older definitions are repeated.[2] "Land, labor and capital" are presented in the familiar roles of the three factors of production.[3] But the first time that there is any real occasion to use the capital concept, a simple footnote makes kindling wood of these museum pieces and the reader is informed that "In the present discussion we shall use the term capital including land as well as man-made instruments. The term is generally so used in discussions of investments."[4] Thereafter capital appears as a fund of value, an investment fund, expressed in terms of dollars. Yet from time to time the discarded notion of the difference between land and man-made capital instruments is weakly reëchoed.[5] The treatment of interest and capital seems pretty nearly in accord with that of Fisher.

8. *Other Representative Opinions*

Professor Seligman, a colleague of Clark's at Columbia, took[6] an advanced position on the concept of value, as well as on the

[1] The thought is hardly to be avoided that some of the peculiar ideas regarding savings and income to which Fisher has adhered so uniquely despite criticism are traceable to this confusion of definitions. We refer especially to his reiterated proposition that "savings are not income." As a financial fact, there can be no saving and addition to capital value until there is first a property right to an income calculable in monetary terms (a financial present worth) to be saved. Hence to deny that monetary savings are monetary income is in simple common sense to deny a *fait accompli;* it is to assume the existence of the effect before its cause.

[2] *Elementary Economics* (1926), Vol 1, p. 32 ff.

[3] *Idem.*, p. 40.

[4] *Idem.*, Vol. 1, p. 355.

[5] *E.g.*, Vol. 2, pp., 163 and 189.

[6] *Principles of Economics* (1905), see pp. 17, and ch. xiv, p. 204. on "The Capitalization of Value."

various related questions of rent, capitalization, etc. He declares repeatedly: "capital is capitalized income," and makes use almost exclusively of a valuation concept in that sense. Professor J. R. Turner too makes use [1] consistently of an advanced valuation concept of capital. These views and those of the writer [2] are in large measure in accord.

Ely as early as 1893 [3] began with a dual capital concept as "every product which is used or held for the purpose of *producing* or *acquiring* wealth," but almost immediately speaks of capital from the individual standpoint as "any economic good" (not merely products) held "for the purpose of gaining wealth." Later editions, though repeating old definitions, give increasing emphasis to the individual, valuation conception, which finally becomes the only one actually used. "The business world . . . speaks of the total investment—the amount of money 'tied up' in a business unit—as its capital. This is the better and more common usage." [4]

Professor Fred M. Taylor [5] speaks approvingly of "one new way of conceiving of capital" as "a fund of value . . . rather than things themselves"; and adds: "Even those who doubt the soundness of this distinction are almost compelled to use it more or less on account of the ambiguities in which current controversies have involved the word capital."

Professor Bye [6] in his formal definition follows Fisher: "a stock of wealth in existence at a given time," including land

[1] *Introduction to Economics*, 1919.

[2] As developed in various places; see, among others, *Quarterly Journal Economics*, Vol. 15 (1900), pp. 1-45, "Recent Discussion of the Capital Concept"; "The Relations Between Rent and Interest," paper read at the New Orleans meeting, with discussion, *Publications of the American Economic Association*, 3rd series (1904), Vol. 5, pp. 176-240; *The Principles of Economics* (1904); *American Economic Review*, Vol. 4 (1914), pp. 68-92; *Economic Principles* (1915), p. 267: "Capital is a person's investment power as expressed in terms of money, being a person's property rights to income, estimated, as to amount, with reference to market conditions." The definitions given in the references dating 1900 to 1904 followed in part Clark's and Fisher's leads in conceiving of capital more nearly as the valuation expression merely of (material) wealth. In developing after 1904 a more adequate capitalization and "interest" theory, the writer returned with clearer convictions to the conception of capital that he had glimpsed before 1900.

[3] *Outlines of Economics.*

[4] *Outlines of Economics*, 4th revised edition (1923), p. 206; see also p. 103 *et passim.*

[5] *Principles* (1913), p. 69.

[6] R. T. Bye, *Principles of Economics*, 1924.

as "natural capital," and "intangible property rights or titles to wealth as a part" of an individual's capital. He thus glides insensibly into the value conception of "net property rights," "net worths," etc.[1] Still the ghosts of the older conceptions of "natural" land and "produced" capital haunt almost every paragraph of the later chapter entitled "Income from artificial capital."

Professor O. F. Boucke[2] endeavors to give impartial recognition to the two different main concepts (besides several minor variations), capital "as technical aids used in production, or as any source whatsoever of incomes."[3] The latter idea is later expressed as "a sum of money or its equivalent," a "capital value" concept which includes such things as the "value of patents or copyrights, or of personal reputations," etc.[4] Thereafter, whenever capital is referred to in connection with credit, interest, or any sort of business problems, this value concept seems to be the one preferred.

Professor L. D. Edie[5] likewise starts by repeating the older definitions and distinctions based on the concrete goods notion, noticing, only to chide, the business man's thought of his business capital as money, or as "borrowed money on credit."[6] But he cannot long escape recognizing "capital values," and "capital is, from this viewpoint, not merely a mass of physical goods, but this plus a mass of property rights, good will, and other intangible assets." He adds: "To be realistic, our use of the term capital must harmonize with prevailing business facts" and declares that, "This modern view is amplified later in the present chapter."[7] A peculiarity of this author's view is that he seems to admit the valuation concept of capital only under the corporate form of organization.

9. *Clark's Message Still Vital*

It would be too great a task to pursue our inquiries further into the mass of recent business texts that touch upon this subject. It is a paradox that the more emphatically an author

[1] *Op. cit.*, p. 24.
[2] *Principles of Economics*, 2 Vols., 1925. Ref. to Vol. I.
[3] *Op. cit.*, p. 95. These ideas are more elaborately set forth, pp. 370-376.
[4] *Idem.*, p. 381.
[5] *Economics*, 1926.
[6] *Op. cit.*, p. 247 ff.; also p. 254.
[7] *Idem.*, p. 255.

professes to have written for students of business, the more remote from actual business usage his conception of capital is likely to be. How long must it continue to be a sort of ritual for the writer of economic text books to at first repeat piously old definitions from which all vital meaning has departed (if they ever had any) only to throw them aside later when the time comes to use them. Must every year the minds of thousands of beginning students of economics be crammed with this useless intellectual lumber? In what other field of study could such a practice continue? The way to consistency and clearness has been clearly shown by the labors of the past generation. Ambiguity must be banished from economic terminology. Wealth and capital are not the same or even related as genus and species. Capital is essentially an individual acquisitive, financial, investment ownership concept. It is not coextensive with wealth as physical objects, but rather with legal rights as claims to uses and incomes. It is or should be a concept relating unequivocably to private property and to the existing price system. Social capital is but a mischievous name for national wealth. The so-called, misnamed, "interest problem" is not to be conceived of as correlated with a narrow class of artificial goods but rather as the time-value element permeating all cases of valuation of groups of uses differing in time. The admission of these and a number of logically related truths is partially, haltingly, inconsistently implied in much of the current treatment of the fundamentals. When will it be made frankly and clearly? When will the dead hand of Ricardianism be lifted from our economic texts?

John Bates Clark in his young manhood struck straight and telling blows for a newer, truer and more realistic conception of distributive theory. He did not attain an ultimate goal, but he advanced in the right direction, showing the way to us. The sincerest tribute that we, and that men of younger generations, can render to him is to seek and to find the truths implicit in the work of the notable era of which he was so large a part.

A STATISTICAL METHOD FOR MEASURING "MARGINAL UTILITY" AND TESTING THE JUSTICE OF A PROGRESSIVE INCOME TAX

Irving Fisher

Introduction

Among Professor J. B. Clark's many contributions to economic science is his discovery, independently of Jevons, Menger, and Walras or their anticipators, of the concept of "Marginal Utility," or as he first called it "effective specific utility," or as I shall call it in this article, "want-for-one-more" [1] unit of any economic good. He is the only American who has that honor.

The basic importance of this concept has been partially lost sight of because of the growth of statistical economics and the lack hitherto of any method of showing that such a purely psychical magnitude is at least capable of being measured, granted the necessary data.

For a generation, economic text books have displayed curves purporting to show "the law of diminishing utility." But how

[1] I have discussed the unsatisfactory terminology on this subject in "Is 'Utility' the Most Suitable Term for the Concept Which It is Used to Denote?", *American Economic Review*, Vol. VIII, No. 2, June 1918, pp. 335-337. Among the terms in use or proposed—utility, desiredness, desirability, ophelimity, advantage, rarete, wantedness, wantability, want—I prefer the short and simple term "want" followed by "for." To relieve monotony, occasional use may be made of "wantability of," or, more strictly, "wantedness of." When, as is usually the case, we refer to what is commonly called the "margin," I suggest we say not marginal want but simply "want-for-one-more," or, to relieve the monotony, "wantability-of-one-more" or "advantage-of-one-more" rather than *"final degree* of utility" or even *"marginal* desirability." Although "margin" and "marginal" are already in current use, their technical meaning is not self-evident. I find intelligent business men assuming that "margin" refers not to an edge or limit but to an *interval* as the "margin" of a page or the "margin" in a broker's acccount. I hope the term "utility" in particular may be abandoned, because it has to-day other economic connotations, such as in "A Public Utility" referring, say, to a telephone company, and because it seems to imply a committal to the old utilitarian "calculus of pleasure and pain" of Bentham and his school. The true meaning needed is based primarily not on pleasure but desire. For a fuller statement see my "Mathematical Investigations in the Theory of Value and Prices," *Transactions of the Connecticut Academy*, Vol. IX, July 1892, pp. 1-124, republished 1925, Yale University Press.

much real meaning do such curves have? If so-called "marginal utility" of anything, (or, as I prefer to say, if the want-for-one-more unit of anything) is a true mathematical quantity, should not that marginal want be measurable?

In my first economic publication [1] I endeavored to show that this magnitude is measurable,—in theory at least. My object here is to go one step further and to show that even the problem of statistically measuring it should not be considered insoluble.

If this contention is justified, the appearance of unreality which has surrounded the subject ought to disappear, and, if or when we actually reach even a rough numerical measurement so that the subject enters Statistical Economics, the interest in it will be revived and increased.

It is noteworthy that even Jevons, one of the originators of the concept of the "want-for-one-more," (or, as he called it, "final degree of utility"), and an enthusiastic believer in mathematical analysis, seemed to doubt the possibility of giving to that concept the full fledged status of a measurable quantity. He said, "We can seldom or never affirm that one pleasure is an exact multiple of another," [2] and again, "I hesitate to say that men will ever have the means for measuring directly the feelings of the human heart. A unit of pleasure or of pain is difficult even to conceive; but it is the amount of these feelings which is continually prompting us to buying and selling, borrowing and lending, laboring and resting, producing and consuming; and *it is from the quantitative effects of the feelings that we must estimate their comparative amounts.*" [3]

This scepticism as to possibly measuring human wants is especially remarkable in view of Jevons' statement: " 'But where,' the reader will perhaps ask, 'are your numerical data for estimating pleasures and pains in Political Economy?' I answer, that my numerical data are more abundant and precise than those possessed by any other science, but that we have not yet known how to employ them. The very abundance of our data is perplexing. There is not a clerk nor bookkeeper in the country who is not engaged in recording numerical facts for the economist.

[1] *Op. Cit.* pp. 11-24, 86-89. So far as I know this is the only attempt (other than Edgeworth's therein cited) of treating "utility" or "want" as a definite mathematical quantity.

[2] *Theory of Political Economy*, p. 13.

[3] *Op. cit.*, p. 11.

The private account books, . . . are all full. . . . But it is chiefly a want of method and completeness in this vast mass of information which prevents our employing it in the scientific investigations of the natural laws of Economics." [1]

It has long seemed to me that just such records of consumption as Jevons mentioned ought, on proper analysis, to yield a real statistical measurement of this most elusive of magnitudes. If this cannot yet be done for the individual, or even for the individual family, it may be that it can be done for a "typical" family, an imaginary family, consisting of a given number of people and having a given income. That is to say, we may possibly be able to make use of *mass* statistics somewhat as the physicist measures the pressure of a gas without measuring the impulses of individual molecules, though it is really the bombardment of these against the containing walls which really constitutes the gaseous pressure. We can often gauge a mass effect when we cannot gauge its constituent parts. As my old master in mathematical physics, J. Willard Gibbs, used to say, "The whole is simpler than its parts."

The records from which I hope we may succeed in distilling out the desired psychological essense, the want-for-one-more, are (1) retail prices, and (2) family budgets. Through such mass statistical measurements we may succeed in gauging average or typical human emotions even better than any individual who feels them, just as a clever editor, or advertiser, or salesman, knows what the mass of people want better than any person in that mass itself.

Specifications Re Budgets and Prices

The method consists, in a word, of so utilizing data of family budgets and prices as to compare the wants of two typical families of different incomes, in the same community, by using as a yardstick or criterion, a third typical family having identical tastes, but differing in the amount of income, and living under a different scale of prices for foods, rents, clothing and other items of consumption.

Let us, then, imagine three typical workingmen's families, each consisting, say, of five people, the man himself, his wife, and three typical children.

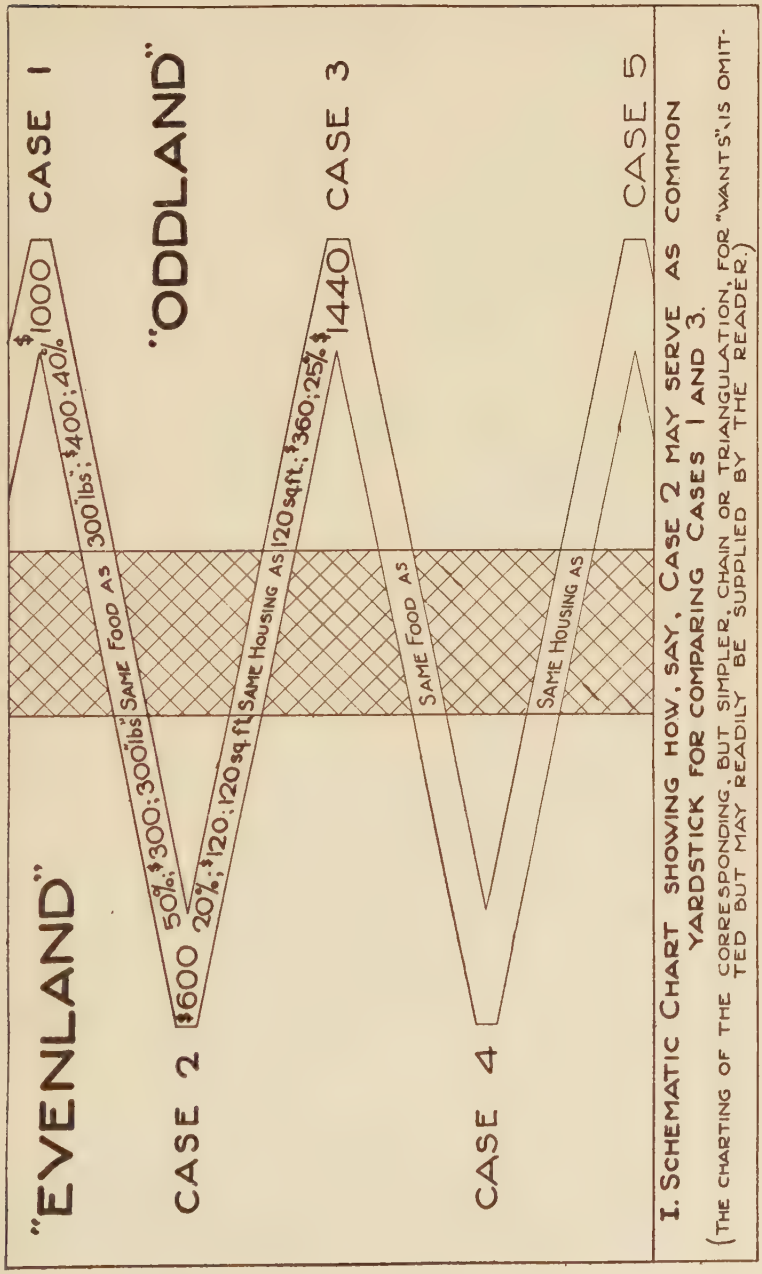
[1] *Op. Cit.* pp. 10, 11.

It is further assumed that, between these three families, which we may distinguish as Case 1, Case 2, and Case 3, respectively, there is no difference in the want schedules. That is, we assume that all three families' appetites and tastes are the same, so that in all three cases they will react in precisely the same way to the same opportunities to spend money. These opportunities, however, are *not* supposed to be the same, because of two variables, namely, (1) the *incomes* are supposed to be different in the three cases, and (2) the *prices* in the two countries, England and America, are supposed to be different. Because of these differences, in prices and incomes, the family budgets will necessarily differ. We shall see that the behavior of the families, in response to the changes in price and income, can be used to reveal the varying strength of their wants or desires in accordance with their want schedules. While their three want *schedules* are identical, their positions *in* this common schedule are not. That is, the three families *would* behave alike if their circumstances were alike, but actually *do* behave differently because their circumstances are different.

Since the calculations here to be presented are purely illustrative and make no pretense of being statistical, and since we wish the formulæ to be general, we shall call the two countries, not America and England, but Oddland and Evenland. The odd numbered Cases, the first and third, are in Oddland and the even numbered, the second, is in Evenland. A "map" of these countries and of the families or Cases concerned is suggested by Chart I.

What a typical family would do under different circumstances as to income and prices is assumed to be in accordance with the known statistics of family budgets in Oddland and Evenland.

When, as I hope to do in a later paper, I come to actual statistics, the figures used will be those averaged from actual families who have kept records of their total income and of their expenses for food, clothing, rent, etc., such figures as those collected by Le Play and the United States Bureau of Labor Statistics. In order that the averages may be significant, it is, of course, necessary to have a sufficient number of cases within each income group (as, say, between $1000 and $1100 total income) to avoid the over-influence of one or two erratic cases. Even so, some method of "smoothing" will need to be employed.



I. SCHEMATIC CHART SHOWING HOW, SAY, CASE 2 MAY SERVE AS COMMON YARDSTICK FOR COMPARING CASES 1 AND 3.

(THE CHARTING OF THE CORRESPONDING, BUT SIMPLER, CHAIN OR TRIANGULATION, FOR "WANTS", IS OMITTED BUT MAY READILY BE SUPPLIED BY THE READER.)

In order to extract from the figures for prices and budgets some of the want schedules of our imaginary typical families, I allot to the three Cases such incomes as will result in (a) the selection of the same, or equally desirable, food rations in Cases 1 and 2 and (b) the selection of the same, or equally desirable, housing accommodations in Cases 2 and 3. Thus Case 2, in Evenland, resembles Case 1, as to food (but not as to housing) and resembles Case 3 as to housing (but not as to food). By means of these interrelationships, Case 2 acts as a go-between connecting Case 1 and Case 3. These interrelations afford the essential basis for the method employed.

Notation

Let the total expenses or sums of money spent on the family budget in Cases 1, 2 and 3 be respectively S_1, S_2, S_3 (the letter S standing for *S*pent or *S*ums). Let the *percentages* of these sums spent for food be ϕ_1, ϕ_2, ϕ_3 the letter ϕ suggesting food and Greek letters being used for all budget percentages. Similarly let the percentages spent for rent be ρ_1, ρ_2, ρ_3. Similarly, let the price index of food in Oddland, *i.e.*, for Cases 1 and 3, be F_1 or its equal F_3 (since, of course, being in the same market, they are assumed to be the same) and in Evenland, F_2. Likewise let the price index of rent be R_1, or its equal R_3, in Oddland and R_2 in Evenland.[1]

Thus, in short tabular form, we have the following symbols to consider:

Total spent: S_1, S_2, S_3	
% for food: ϕ_1, ϕ_2, ϕ_3	
Food Price Index: F_1, F_2, F_3	$(F_1 = F_3)$
% for rent: ρ_1, ρ_2, ρ_3	
Rent Price Index: R_1, R_2, R_3	$(R_1 = R_3)$

The Problem

Our chief problem is to measure, or compare, the families' want-for-one-more dollar in the three Cases. We shall also measure the want-for-one-more unit of food, and the want-for-one-more unit of shelter.

Let us designate by W_1, the want-for-one-more dollar in Case

[1] I realize that it seems a wasteful notation to use two symbols F_1 and F_3 to mean the same thing, as also R_1 and R_3, as the same price levels apply to both Cases 1 and 3. But after trying other notations, I concluded that there was a valuable mnemonic advantage in using a subscript 1 for every symbol associated with Case 1 and likewise 2 and 3 for Case 2 and Case 3 respectively.

1, and similarly as to W_2 in Case 2, and W_3 in Case 3, thus adding three more symbols to the previous list, namely:

Want-for-one-more dollar: W_1, W_2, W_3

The larger the income available, the more and better will be the food and shelter obtained. Changes in quality will, under all ordinary circumstances, accompany changes in quantity so that to designate the quantity would practically be sufficient to completely determine the entire character—quality as well as quantity—of the ration used. For convenience, therefore, we need pay no attention to the accompanying changes in quality but may give attention only to changes in quantity,—the number of pounds of food used; likewise we may describe housing by a quantitative index, say the number of square feet of floor space.

These somewhat naïve methods of picturing the matter can be revised later, as we approach the practical statistical problem. All that is meant here is that, for convenience in thought, we may distinguish the housing conditions of our three families exclusively on the basis of floor space. A family of five occupying a tenement of 2000 square feet has, naturally, a better, as well as a larger, housing accommodation than one occupying a 1000 square feet tenement; but the housing conditions for such a family are sufficiently specified and determined by specifying the number of square feet used.

Again, to fix our ideas, let us think (also somewhat inaccurately) of the index number F_1, or its equal F_3, as the average price of food per pound in Oddland, and likewise F_2, as the average price of food per pound in Evenland. Similarly R_1 (or its equal R_3) is taken as rent per square foot in Oddland, and R_2 rent per square foot in Evenland.

Since we shall only need the *relative* magnitudes of F_1 (or F_3) and F_2, we shall, for simplicity and convenience, assume that the Evenland average price of food, F_2, is \$1 per pound, while, similarly, R_2, is \$1 per square foot.

Calculating W_1 and W_3 from W_2

It is now possible to calculate S_1 from S_2 or *vice versa;* and S_3 from S_2 or *vice versa.* I shall start with S_2 and from it calculate S_1 and S_3, and likewise, starting with W_2, calculate W_1 and W_3. We thus measure Oddland's four magnitudes in terms of Even-

land's two magnitudes, S_2 and W_2, taken as our standards or yardsticks.

Each of these four calculations forms a chain. The first link in each chain,—S_2 or W_2 as the case may be,—is supposed to be given. This first link may be assumed as any convenient figure. Let us take S_2 equal to \$600, and W_2 equal to unity. To coin a word, we may call this latter unit a "wantab" (which may be regarded as an abbreviation either of "wantability" or of "want tab," (*i.e.* a unit for keeping tab on the strength of a want).

Let us then pass from W_2 toward W_1, beginning with $W_2=1$ wantab, as the first step. The next step is to calculate the want-for-one-more pound of food per-annum of the family in Evenland by multiplying W_2 by F_2, the price per pound, giving $W_2 F_2$ or, (since $W_2=1$ and $F_2=1$) $1\times1=1$ wantab.

This multiplication is in accordance with the fundamental principle connecting want-for-one-more unit and price per unit. In its simplest application this principle tells us that (at the "margin" or limit of purchase, or of consumption) if, say, bread costs 12 cents a pound, the want-for-one-more pound of bread is twelve times the want-for-one-more cent.[1]

The next magnitude is the want-for-one-more pound of food in Case 1. By hypothesis this is to be the same as in Case 2. That is $W_2 F_2\ (=1)=W_1 F_1$.

This follows because, according to our hypothesis, we know that:

(1) The want schedules (including that for food) in all three Cases (and so in Cases 1 and 2) are identical;

(2) The food rations in these two Cases are the same in quantity and quality;

(3) The want-for-one-more pound of food is assumed to be a function of this food ration, and of nothing else (and so is not affected by the fact that the housing accommodation differs in the two Cases).

The next magnitude to be found, and the last in this particular chain, is W_1, the want-for-one-more dollar in Case 1. This we get by dividing $W_1 F_1$, known to be unity, by F_1, the price of food in Oddland. This figure is supposed to be known from

[1] For a mathematical discussion of this almost self-evident principle, the reader may consult any mathematical writer on value and price such as Jevons, Marshall, Edgeworth, Gossen, Mangoldt, Laundardt, Walras, Pareto, Bowley, or my own, *Mathematical Investigations,* p. 36.

market prices and index numbers of these. Let us suppose F_1, the food price level in Oddland, to be a third greater than F_2 (=1), the food price level in Evenland, or F_1=\$1.33⅓ per pound.

That is, we divide $W_1 F_1$=1 by F_1=1.33⅓ and obtain W_1=.75 of a "wantab."

We have calculated W_1, the want-for-one-more dollar of the family called Case 1. This calculation has been made on the basis of data relating to food alone; but, in accordance with well known economic theory, we assume that the want-for-one-more dollar of a given family is the same as the want-for-one-more dollar's worth of food, clothing, shelter or any other item of expenditure.

The above process, or chain of calculations, by which W_1 is found from W_2 may be tabulated as follows:

Given	W_2 = 1 wantab	= Want-for-one-more dollar in Case 2.
Given	F_2 = \$1.00	= Price Index of Food, Case 2.
Multiplying, we get	W_2F_2 = 1 wantab	= Want-for-one-more pound of food, Case 2.
This is same as	W_1F_1 = 1 wantab	= Want-for-one-more pound of food, Case 1.
Given	F_1 = \$1.33⅓	= Price Index of Food, Case 1.
Dividing, we get	W_1 = .75 of a wantab	= Want-for-one-more dollar, Case 1.

We have now found W_1 from W_2. We can next find W_3 from W_2 analogously. Briefly:

Given	W_2 = 1 wantab	= Want-for-one-more dollar, Case 2.
Given	R_2 = \$1.00	= Price Index of Rent, Case 2.
Multiplying,	W_2R_2 = 1 wantab	= Want-for-one-more square foot of housing, Case 2.
Same as	W_3R_3 = 1 wantab	= Want-for-one-more square foot of housing, Case 3.
Given	R_3 = \$3.00	= Price Index of Rent, Case 3.
Dividing,	W_3 = .33⅓ of a wantab	= Want-for-one-more dollar, Case 3.

We have now calculated W_3, the want-for-one-more dollar of the family called Case 3. This calculation was made from house rent data, but of course represents the want-for-one-more dollar expended for anything else.

Discussion of the Results

Our two chains of calculations show that if we take as our unit, or "one wantab," W_2, the want-for-one-more dollar of Case 2 in Evenland,—we can compute the wants-for-one-more dollar, W_1 and W_3, in Cases 1 and 3 in Oddland. These are .75 and .33⅓ wantabs respectively.

We may express the result by saying:

In one country, Oddland, where food prices are 4/3 as high as in another country, Evenland, a family, Case 1, so circumstanced as to choose the same food ration as a given family, Case 2, in Evenland, will esteem the dollar ¾ as much. That is, the want-for-one-more unit of food being the same in the two Cases, that for one more unit of money will vary inversely as the price of food.

Similarly the want-for-one-more unit of housing accommodation being the same in Cases 2 and 3, that for money varies inversely as the price of housing. Rents of any given quality being three times as high in Oddland as in Evenland, the desire for an extra dollar in Case 3 is ⅓ as great as it was in Case 2.

These two simple and obvious comparisons, each being between a pair of Cases, taken one in Oddland and the other in Evenland, enable us next to compare the two Cases in one and the same country, Oddland. We can now say that the wants-for-one-more dollar in Cases 1 and 3 are as ¾ is to ⅓ (or as .75 to .33⅓ or as 100 to 44 4/9).

It will be noticed that these figures depend solely on the price indexes. The budget ratios are not involved in the two chains.

We have, in effect, used Evenland conditions merely as a measuring rod by which to compare the two cases in Oddland with each other. In order that these two Cases should show any contrast it is essential that the two prices—those of food and of rent—shall, in Oddland, bear *different* ratios to their prices in Evenland. If, instead of the widely different price indexes 4/3 and 3/1 or (1.33⅓ and 3.00) we had had equal indexes, such as 1.50 and 1.50, the two Cases 1 and 3 would show no contrast at all in the wants-for-one-more unit.

We have reached, as our first numerical result, that, as to the

two supposed Cases in Oddland, they value the dollar differently in the ratio of 100 to 44 4/9.

Calculating S_1 and S_3 from S_2

Evidently this contrast in the valuation of the dollar is not due to any contrast between the two families, since by hypothesis they are as like as two peas, but is due entirely to the contrast between their economic circumstances. But, up to this point, the only signs of this contrast in their circumstances are indirect; the hypotheses as made, imply differences in their circumstances in prescribing that Case 1 chose the same food as Case 2 at food prices only a third greater, while Case 3 chose the same housing as Case 2 at housing prices three times as great. If, as compared with Case 2, Case 3 could thus afford to pay *much* more for the very same sort of tenement while Case 1 could only afford to pay a *little* more for the very same sort of food, it certainly looks as though Case 3 were richer than Case 1. What we want to know next is: How *much* richer is Case 3 than Case 1? Our next problem, then, is to find out what were the total incomes [1] or expenditures, S_1 and S_3 of Case 1 and Case 3.

We can calculate S_1 and S_3 from S_2 by chains of reasoning analogous to the two chains of reasoning by which we have just calculated W_1 and W_3 from W_2, although our new pair of chains consists of a larger number of links.

Our first link is assumed. It is that S_2=\$600.

The second link is ϕ_2, the percentage of S_2 spent by Case 2 for food. This percentage is readily found from the budget tables. Suppose it to be 50%. That is, the budget tables of Evenland show that in a family there which has an income and annual expenditure of only \$600, 50% thereof is spent for food.

Our third link is the same thing—the food expenditure of Case 2,—but expressed in actual dollars. We find this, of course, simply by multiplying S_2 by ϕ_2. The result is $S_2\,\phi_2$ or, in figures, \$600×.50=\$300, spent for food by Case 2.

The next step is to ascertain the number of food units ("pounds") thus bought for $S_2\phi_2$ dollars. This is found by divid-

[1] It is assumed, that budgets balance in all cases, income being equal to expenditures or, if we wish to be more realistic, that income exceeds expenditures in all cases by a fixed percentage, say 10%, as savings.

ing that number of dollars by F_2, representing the price of food in Case 2. The result is $\frac{S_2\phi_2}{F_2}$. Numerically this result (since we suppose F_2, the average price of food in Evenland, to be \$1 a "pound") becomes \$300÷\$1, or 300 "pounds," or food units.

We now cross over the sea to "Oddland" and study Case 1. As stated in our hypothesis we have assigned to our family, Case 1, the same number of food units as in Case 2. Or, to be more exact, we have allotted to Case 1 such an income as would lead it to choose of its own free will (in view of all the costs of living for food, clothing, housing, and all the rest obtaining in Oddland), the very same (or equally desirable) food as Case 2 buys in Evenland (at quite different prices and out of a quite different income). It follows that the food of Case 1 must be also 300 lbs. Algebraically expressed the food of Case 1 is $\frac{S_1\phi_1}{F_1}$, so that $\frac{S_1\phi_1}{F_1}$ = 300 "pounds."

From this we can compute S_1 as soon as we know ϕ_1 and F_1. We know that F_1, by hypothesis, is \$1.33⅓; *i.e.*

$$F_1 = \$1.33\tfrac{1}{3},$$

Multiplying this by the last result, namely

$$\frac{S_1\phi_1}{F_1} = 300 \text{ we obtain } S_1\phi_1 = 400.$$

which is the money paid for food by Case 1.

We next find ϕ_1. The family budget tables in Oddland show, let us say, that a family which spends \$400 for food is one which spends thereon 40% of its total expenditure; that is, $\phi_1 = .40$.

It is now evident that the total expenditure in Case 1 can readily be found by dividing the expenditure for food

$$S_1\phi_1 = \$400 \text{ by } \phi_1 = .40 \text{ giving } S_1 = \$1000.$$

Thus, beginning with S_2=\$600, we have ended our chain of calculations with a figure for S_1, which was the object of our search. That is S_1=\$1000.

The above process, or chain of calculations by which S_1 is found from S_2, may be tabulated as follows:

Given	$S_2 = \$600$	= Total dollars spent by Case 2.
From tables	$\phi_2 = 50\%$	= % for food by Case 2.
Multiplying,	$S_2\phi_2 = \$300$	= dollars spent for food by Case 2.
Given	$F_2 = \$1$ per "lb."	= Index No. of food prices, Case 2.
Dividing,	$\frac{S_2\phi_2}{F_2} = 300$ "lbs."	= Measure of food, Case 2.
Same as	$\frac{S_1\phi_1}{F_1} = 300$ "lbs."	= Measure of food, Case 1.
Given	$F_1 = \$1.33\frac{1}{3}$ per "lb."	= Index No. of food prices, Case 1.
Multiplying,	$S_1\phi_1 = \$400$	= dollars spent for food by Case 1.
From tables	$\phi_1 = 40\%$	= % for food by Case 1.
Dividing,	$S_1 = \$1000$	= Total dollars spent by Case 1.

Likewise, to get S_3, the total spent in Case 3, we proceed as follows:

Given	$S_2 = \$600$	= Total dollars spent by Case 2.
From tables	$\rho_2 = 20\%$	= % for rent by Case 2.
Multiplying,	$S_2\rho_2 = \$120$	= dollars spent for rent by Case 2.
Given	$R_2 = \$1$ per sq. ft.	= Index No. of rent prices, Case 2.
Dividing	$\frac{S_2\rho_2}{R_2} = 120$ sq. ft.	= Measure of Housing, Case 2.
Same as	$\frac{S_3\rho_3}{R_3} = 120$ sq. ft.	= Measure of Housing, Case 3.
Given	$R_3 = \$3$ per sq. ft.	= Index No. of rent, Case 3.
Multiplying,	$S_3\rho_3 = \$360$	= dollars spent for rent by Case 3.
From tables,	$\rho_3 = 25\%$	= % for rent, Case 3.
Dividing,	$S_3 = \$1440$	= Total dollars spent, Case 3.

Comparison of Case 1 and Case 3

We have now found S_1 and S_3 through the intermediation of S_2. We note that both S_1 and S_3 are in the same country, Oddland, and under the same prices, F_1 (or its equal F_3) of food and R_1 (or its equal R_3) of house rent.

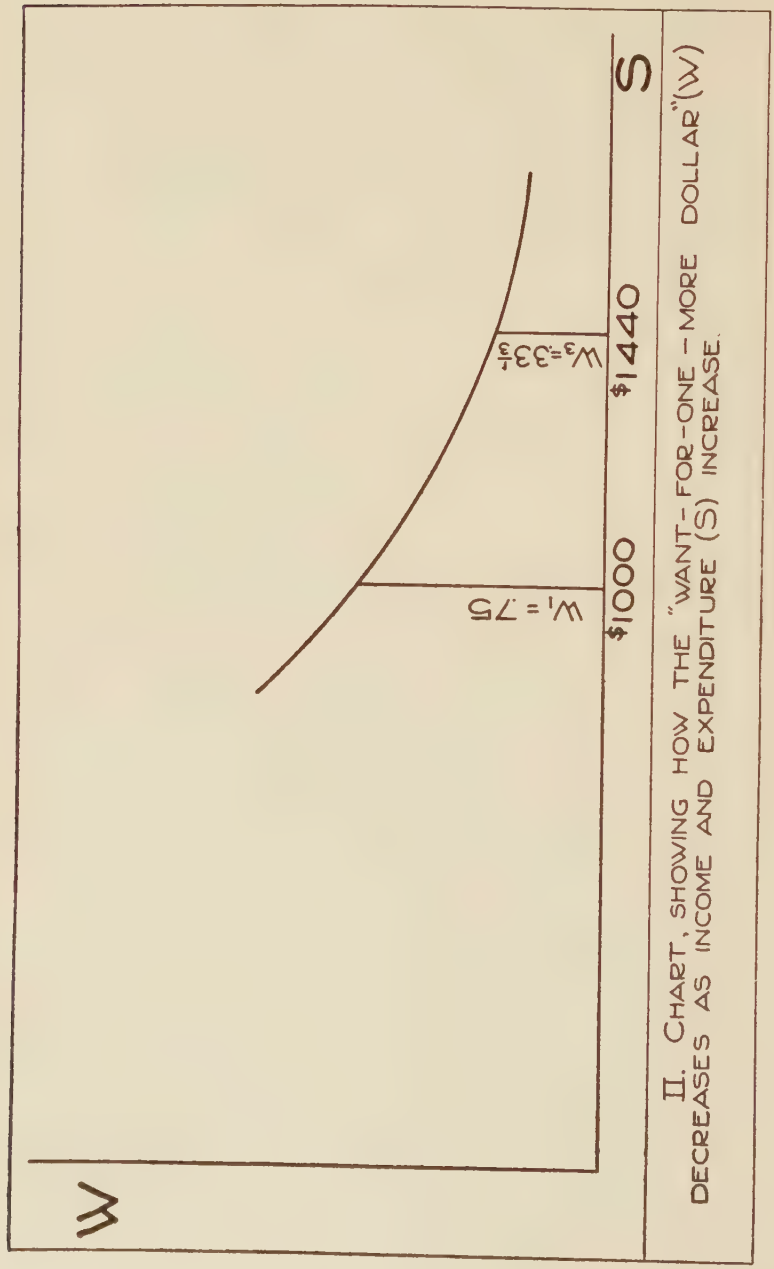
Thus we have four results from our four chains of calculations:

$S_1 = \$1{,}000$; $W_1 = .75$

$S_3 = \$1{,}440$; $W_3 = .33\frac{1}{3}$

According to these figures (which, of course, are based on hypothetical rather than actual statistics for the F's, R's, ϕ's, ρ's), if one family in Oddland has an income of \$1,000 and another has 44% more, the latter's valuation of each dollar is 55 5/9% less.

Chart II shows this result by two points, one for Case 1, the "latitude" and "longitude" of which are respectively income and want-for-one-more dollar (namely $S_1 = \$1000$, $W_1 = .75$



II. Chart, showing how the "want-for-one-more dollar" (W) decreases as income and expenditure (S) increase.

wantabs), and the other for Case 3, the corresponding coordinates, or "latitude" and "longitude," of which are S_3=\$1440, W_3=.33⅓ wantabs.

These two points are only two out of an indefinite number of points which may be supposed to constitute, or lie on, a curve expressing the law by which the want-for-one-more dollar diminishes in relation to the increase of the number of dollars of income available. This curve is none other than the curve of "marginal utility" of money in relation to the size of one's income, often described in text books of economics but never, hitherto, envisaged as, even theoretically, derivable from statistics. The slope of such a curve, if ever reliably ascertained, would enable us to determine a juster system of income taxation than that now in vogue based purely on arbitrary judgment or guesswork.

Important Equations

The nub of the matter lies in the equations signifying that Cases 1 and 2 are alike as to food, while Cases 2 and 3 are alike as to housing. These equations (in the opposite order in which they were found) constitute the following two sets:

$$\left.\begin{aligned}\frac{S_1\phi_1}{F_1} &= \frac{S_2\phi_2}{F_2}\\ \frac{S_3\rho_3}{R_3} &= \frac{S_2\rho_2}{R_2}\end{aligned}\right\}(1) \qquad \left.\begin{aligned}W_1F_1 &= W_2F_2\\ W_3R_3 &= W_2R_2\end{aligned}\right\}(2)$$

What has been done is to solve these four equations to obtain the four unknowns, W_1, W_3, S_1, S_3, assuming S_2 and W_2 as known, the former in dollars and the latter being, for convenience, taken as the standard for measuring wantability since no other unit has previously been established.

Equations (1) signify that the physical food rations of Cases 1 and 2 are alike and that the physical housing accommodations of Cases 2 and 3 are alike.

Equations (2) signify that the marginal wants for like food rations are alike (for Cases 1 and 2) and that those for like housing accommodations are alike (for Cases 3 and 2).

Assumptions Underlying Equation (1) Re-examined

But, before going further, it will be well to review critically the hypotheses on which the foregoing reasoning fundamentally

rests, in order to make sure whether those hypotheses are true or reasonable.

The hypotheses have already been stated, but the equations help us to see more clearly what they involve, and one cannot see too clearly when trying to peer into a region supposed to be dark, and filled with elusive will-o-the-wisps of thought.

If the equations for food, namely $\frac{S_1\phi_1}{F_1} = \frac{S_2\phi_2}{F_2}$ and $W_1 F_1 = W_2 F_2$, are correct (and also the corresponding pair for rent), all the rest follows indubitably. Any critic, in order to discredit the method, must discredit one or another of these four equations.

Certainly no criticism of the first equation is possible, except as to the statistical accuracy of the numerical data. The equation merely describes the two families enjoying the same, or equivalent, food rations. That is, if we locate in the statistical tables of budgets two groups of families, one in Oddland having a total budget of S_1, or \$1000, and the other in Evenland having a total budget of S_2, or \$600, and if it be true, as the statistical tables are here assumed to state, that in Oddland a \$1000 family averages ϕ_1, or 40%, (of his income and expenditure) on food, making $S_1\phi_1$, or \$400, while a \$600 Evenland family averages ϕ_2, or 50%, on food, making \$300; and if, furthermore, the relative food prices in the two countries (for food of the same quality) are as $F_1 \div F_2$, or as $1.33\frac{1}{3} \div 1.00$, then these two families certainly do have the relationship

$$\frac{S_1\phi_1}{F_1} = \frac{S_2\phi_2}{F_2} \qquad \left(i.e.\ \frac{1000 \times 40\%}{1.33\frac{1}{3}} = \frac{600 \times 50\%}{1.00}\right)$$

For convenience we have described this relationship by saying that the two families are selected to have the *same food rations.* But if we prefer meticulous exactitude, we should say, instead, that they are selected such that their food expenditures are proportional to the food price indexes. This is evident if the first equation $\frac{S_1\phi_1}{F_1} = \frac{S_2\phi_2}{F_2}$ is written $\frac{S_1\phi_1}{S_2\phi_2} = \frac{F_1}{F_2}$. This states that the expenditures for food in Cases 1 and 2 are proportional to their prices. It is only in this specific sense that the food can be said to be "the same" in the two Cases.

We need, therefore, no longer picture this sameness as sameness in "pounds," nor need we longer conceive of the index number

F_1 and F_2 as an average of prices. These concepts were makeshifts to simplify the statement. Index numbers properly are averages of price relatives.[1] The equation does not, of course, imply that, as between Cases 1 and 2, the families will find *all* food prices differing in the same ratio, nor that the family will have *absolutely* identical rations in the two Cases. It may find the two food markets different in many details. But, *on the average,* the food prices in Evenland are three-fourths the food prices in Oddland; and, since the family in Evenland also spent three-fourths as much for food as the corresponding family in Oddland, it must, in that sense, be considered as having substantially *the same quantity and quality of food. If the assumed budget tables and price indexes are correct,* the $1000 Oddland family and the $600 Evenland family certainly do have substantially the same food rations. If we wish some term more strictly appropriate than "pounds" of food we may say "index of food consumption."

Likewise, the $1440 Oddland family and the $600 Evenland family, although their dwellings may not be exactly alike in every detail, must, if the budget price tables be correct, have substantially the same sort of housing, since rents (of the same quality) are three times as high in Oddland as in Evenland and Case 3 in Oddland pays said three times as much for his rent as Case 2 pays for his in Evenland.

In other words, while we cannot measure food by the pound nor housing by the square foot nor their prices in those terms, we can use index numbers and expenditures for food and housing in such a way as to enable us to substitute, for strict physical equality, an equality between the ratio of food expenditure to index number of food prices for Case 1 and the corresponding ratio for Case 2; as well as an equality between the ratio of housing expenditure to index number of housing costs for Case 3 and the corresponding ratio for Case 2. For short, I shall call such equality "physical" equality, since it is the nearest approach to strict physical equality we can get and would be absolute equality if the price relatives which are averaged to make the index numbers, F's and R's, were all equal. In short, we have selected our two Oddland families so that, so far as is possible in the two different markets, they match the Evenland family Case 2 (Case 1 matching it as to food and Case 3, as to housing).

[1] See my *The Making of Index Numbers,* Appendix III.

Assumptions Underlying Equation (2) Re-examined

Thus far, certainly, no reasonable critic can object. Any fundamental objection must be confined to questioning the truth of the other two equations, $W_1 F_1 = W_2 F_2$ and $W_3 R_3 = W_2 R_2$.

We pass on, therefore, to the second set of equations. The first of these ($W_1 F_1 = W_2 F_2$) signifies that the two food rations are psychologically equivalent. To be still more specific the equation means that the psychological want-for-one-more "physical" unit of food is the same in Case 1 as in Case 2.

By what right can the equation $W_1 F_1 = W_2 F_2$ be inferred from the preceding equation, $\frac{S_1 \phi_1}{S_2 \phi_2} = \frac{F_1}{F_2}$? Is it, in fact, true that for similar families, two rations substantially equal physically are also substantially equivalent psychologically?

As long as the families in Cases 1 and 2 do not materially differ in size or character, and have substantially the same set of foods available, though differing in price on the average by 33⅓%, the assumption seems at least reasonable. If, to go back to "physical" sameness, there be similar food articles, similar boarding-houses, hotels, cafés, etc., in both countries, differing merely in that the price of a given ration in Oddland is 33⅓% higher than the corresponding grade in Evenland, we have in each country a series of food opportunities distinguishable as, say, first class, second class, third class, etc., as on an ocean steamer, except that in the present instance the scale of gradations steps up continuously by infinitesimal intervals instead of in big jumps. Each family merely has to choose its place on this scale. It is still possible, despite the fact that quality varies as well as quantity, to speak of a physical food unit or a physical unit of house accommodation or clothing. To be specific, let us suppose a list of food rations in Evenland, A, B, C, D, such that B costs $1 more than A, C likewise $1 more than B, D $1 more than C and so on, and such as average families of the same size and general character would choose according to their purse, the very poorest families choosing A and the very richest families choosing Z. The difference in the food as between A and B, or between B and C, or any other one step-up each costing one dollar more than its predecessor in the scale, may be called one "food-unit" and this difference may henceforth be thought of instead of one "pound."

It is assumed that the same or similar grades exist in Oddland except that the corresponding step-up in cost is 33⅓% higher, *i.e.*, is \$1.33⅓ instead of \$1.00.

Since we are assuming that each grade costs Case 1 33⅓% more than the same, or corresponding, grade costs Case 2, evidently Case 1, paying 33⅓% more than Case 2, may be said to be obtaining the same grade. A higher grade would be more than the 33⅓% higher and a lower grade, less.

Now if the two families are assumed to be so much alike in size and character, including tastes, education, and occupation, as well as in any other respect which might affect their want-for-one-more food unit or housing unit, as such units are above defined, the only essential difference between them being in the length of their purses, and the price levels in their respective markets, then, it seems reasonable to assume that their psychological reactions to the same "physical" food rations, or to the same "physical" housing accommodation will be the same. That assumption is here made and, having made it, we need not be troubled by the fact that what has been called "physical" similarity cannot in the complexities of food and housing variations be wholly disentangled from mental judgments. We may rest content with specifying that two food rations are substantially equal, both physically and psychically, if the ratios $\frac{S_1\phi_1}{F_1}$ and $\frac{S_2\phi_2}{F_2}$ are the same. That is, if these ratios are the same, we assume that either family, Case 1, or Case 2, would pronounce the two rations or bills of fare as practically the same, even though they were not absolutely identical.

Food and Clothing Assumed Independent

But I wish to call attention to an important assumption which is implied. This is that the want-for-one-more unit of food depends *only* on the food ration and *not on the housing accommodation, nor on any other circumstance differentiating Cases 1 and 2;* and, likewise, that the want-for-one-more unit of housing depends *only* on the housing accommodation and *not on the food ration, nor on any other circumstance differentiating Cases 1 and 2.* In other words: $W_1 F_1$, the want-for-one-more unit of food in Case 1, is assumed to be *independent* of all variables other than food itself; and so as to $W_2 F_2$. Likewise $W_3 R_3$, is assumed

to be *independent* of all variables other than housing itself, and so as to $W_2 R_2$.

Such independence of food and housing would clearly not hold true of an individual item *within* the food group or the housing group. We know, for instance, that the desirability of, or want-for-one-more loaf of bread depends on many other variables besides the quantity of bread. Especially does it depend on the quantity of, say, butter as a *complementary* or "completing" [1] article, and on the quantity of, say, cake, as a substitute or "competing" [1] article.

But these interrelations within the food group would probably not appreciably affect the want for food as a whole, especially as, in the two Cases 1 and 2, such interrelations within the food group are assumed to be very similar in Oddland and Evenland. Certainly slight internal differences within the food groups,—such differences as we find between, say, England and the United States,—could be neglected. One country may emphasize jam more than marmalade on its tables and the other *vice versa* without appreciably influencing the comparative desirability of the food régimens as a whole.

Such interrelations, therefore, merely affect the adjustments within the food group. There is practically no corresponding relationship outside the group. That is, there is no substitute for food and no complementary group. Only in extreme cases can we say that clothing, for instance, can even partially take the place of food in keeping one warm or that flowers on the table are a complement to the food important enough to appreciably interfere with the equation $W_1F_1=W_2F_2$. Any such extreme cases will scarcely cast doubt on the truth of the proposition that similar families having similar food rations in two countries—though differing in housing conditions and (perhaps) other circumstances—will equally crave a given improvement in that ration.

In short, it is here assumed—and the assumption seems to be reasonable—that, taking food as a group, there is no other group of importance—neither housing, nor clothing, nor anything else—which is sufficiently a "complementary" or a "substitute" group to vitiate the equality of the want-for-more or better food, given physically equal or corresponding rations.

[1] See my *Mathematical Investigations*, p. 65.

Nor does it seem likely that this want-for-one-more food unit is dependent, in any important degree, on circumstances outside the budget such as the character of the neighbors' rations. As to housing, on the other hand, the want-for-one-more unit will probably be appreciably affected by one's neighbors' standards. The only way to eliminate this influence is to *assume that the same general social standards apply in Oddland as in Evenland.* Probably, in actual practice, the chief difficulty in the way of accurate statistical measurement will consist in getting cases differing in income without differing greatly in the influence of social environment on the problem. As I see it, this is the only difficulty of importance.

With this assumed, however, I cannot see any reason to doubt the substantial truth of the proposition that, when the adjustment of housing accommodation to prices is effective in both countries, the desire for one more housing unit is the same in Cases 3 and 2.

Equation (2) Interpreted

We now ask anew, in what sense does the equation, $W_1 F_1 = W_2 F_2$, mean that the family wants one more unit of the ration in Case 1 exactly as intensely as the 2nd family wants one more unit added to the same, or equivalent, ration in Case 2? Putting this equation in the form $\frac{W_1}{W_2} = \frac{F_2}{F_1}$ and remembering that the W's are *per dollar,* we see it means that our families' wants-for-one-more dollar's worth of the ration common to Cases 1 and 2 are inversely as the price indexes in the two countries. Or again, by using the reciprocal of this price index as an index of the *purchasing power of the dollar,* and so putting the equation in the form:

$$\frac{W_1}{W_2} = \frac{1/F_1}{1/F_2}$$

we may say that the want-for-one-more dollar, or for one more dollar's worth of the food ration, varies directly with the purchasing power (in terms of food) of the dollar. In our imaginary calculations the common food ration of Cases 1 and 2 costs $400 in Oddland and $300 in Evenland, the price index being, in the two Cases, as 4 to 3, or the purchasing power of the dollar as

3 to 4. The equation implies simply that the subjective desire for a dollar, or a dollar's worth of food, will also be as 3 to 4.

Equilibrium of Dollars Variously Spent

I have used alternatively "a dollar or a dollar's worth of food." But this implies another assumption which must be explicitly specified, namely, that the want-for-one-more dollar is the same as the want-for-one-more dollar's worth of food, and likewise as to one more dollar's worth of housing, or of anything else.

This is a familiar theorem in theoretical economics, resting on the idea that if, temporarily, there is any inequality between dollars in different uses, the family will speedily rectify it by spending more money in the direction where a dollar will bring more satisfaction than in other directions, until perfect equilibrium is established, whereupon one more dollar spent in any direction will bring exactly the same satisfaction as if spent in any other direction. Without such assumption of equilibrium, we would have not merely one uniform W_1 in Case 1, but many diverse W's which we should have to distinguish as, say W_1', for a dollar's worth of bread, W_1'' for a dollar's worth of sugar, W_1''' for a dollar's worth of potatoes, etc., all differing slightly from each other.

Strictly speaking such differences always do exist in some degree. But while there is never *absolute* equilibrium in this world, yet, for all practical purposes, I think we are safe in pinning our faith to this assumption of an approximate equilibrium of the want-for-one-more dollar's worth of all commodities and services, at least for all which are easily subdivisible.[1]

The only exception to substantial equilibrium which is at all likely to trouble us in this statistical quest, is in respect to housing accommodation. Here the adjustments are so slow, that, with a rapid change in incomes or unequal changes in prices of foods, rents, etc., several months at least may be required before the tenants have had time to get their best money's worth. It takes time to find the best bargains which the new situation has created, time to move into new quarters, time to get free of lease

[1]See my *Mathematical Investigations*, also Auspitz und Lieben, *Untersuchungen über die Theorie des Preises*, Leipzig (Dunkler & Humblot), 1889.

obligations, and time even to learn of what has happened. Moreover, moving from house to house costs money and trouble, which deter tenants from making complete adjustments. Finally, housing accommodation is not as finely graduated or subdivisible as are food rations and other branches of the family budget. Food as a whole—and even individual foods, such as bread, milk, meat, etc.,—are almost infinitely subdivisible so that the adjustment can be made to the limit of the power of man to discriminate. But a family which is house hunting sometimes has to choose between a tenement which has too many or too big rooms and one which is too small, since the ideal intermediate size is not available. For all these reasons rent adjustments are less perfect than other consumption adjustments. Nevertheless, even as to rent, when two countries are compared, it seems fair to assume that, for the average or typical family, and "in the long run," the adjustments are made with considerable precision.

Comparability of Wants of Different People

There is one other assumption, or group of assumptions, still to be mentioned, the assumption of comparability of wants among different people; for, in practice, we have no such convenient family as one which remains invariable in its wants and lends itself to study under successive episodes. But we do have, available, thousands of workingmen's budgets in the United States, England, etc.

The simplest case of measuring one want against another is where we have only *one* particular individual, say a housewife, at one particular time, say January 1, 1900, under one particular set of circumstances, in the act, say, of buying eggs. At that moment when, after balancing her want for eggs against her want for dollars, she decides how many eggs she will buy, we may say definitely that one want is being measured directly against another *in the same mind*. But can we properly compare her particular want for eggs or dollars with that of another woman by her side who is going through the same process? Can we even compare her own individual wants at two different times? Finally, are we justified in taking her market decisions as representative of the wants of other members of her family?

To all these questions I would answer "yes"—approximately at least. But the only, or only important, reason I can give for

this answer is that, in actual practical human life, we do proceed on just such assumptions. Academically we may have philosophic doubts as to bridging the gulf between mind and mind, or even between one time and another time for the same mind. But somehow, we do bridge those gulfs. Human intercourse largely consists in so doing even if we cannot tell how we do it. The housewife knows the wants of her husband and children almost as well as she knows her own, and we may well take for granted that the other woman beside her, unless abnormal or unusual, has comparable wants both as an individual and as the representative of her own family group.

Philosophic doubt is right and proper, but the problems of life cannot, and do not, wait. One can even doubt the philosophic propriety of our measurements of space, matter and time, and in fact, Einstein has raised very definite doubts and possibly even overthrown what Newton seemed to have established. But practically we go on measuring, and building in space and time, and, for all practical purposes, our unproven ideas *work*.

So economists cannot afford to be too academic and shirk the great practical problems pressing upon them merely because these happen to touch on unsolved, perhaps insoluble, philosophical problems. The psychologist has set the example by becoming a "behaviorist." He can thereby deal practically with phenomena the essential nature of which he confesses he cannot fathom.

By common sense we cut our gordian knots. We may not know really what goes on in the mind of a dog, but practically we can tell by his behavior when he is hungry, or pleased. We have somehow learned to interpret the wagging of his tail, and the sound of his bark. Even more have we learned to interpret the feelings of another human being. Any normal housewife knows the heart's desire of every member of her flock.

Facing our problem, then, as a practical common sense problem, rather than as an academic and philosophical one, I venture to set up as a working hypothesis, that *similar families have similar wants*, that in particular, two average American workingmen's families which are of the same size and age and sex constitution, and which have the same food budgets will also have the same want-for-one-more unit of food; or again, that two typical American workingmen's families which have the same housing accommodation (assuming there has been opportunity to

reach adjustment or equilibrium) will also have the same want-for-one-more unit of housing.

This intercomparability is more truly applicable as between large groups of workingmen's families, as revealed in the average family budgets, than as between two particular families.

In fact, while it helped at the outset to picture three identical families, just as it helped to think of our measurements as in "pounds" or "square feet," in practice—at least in the present state of our knowledge and statistics—we can scarcely expect to measure the wants of any *individual* family. Variability and chance enter in too much. To make any progress toward practical measurements we must combine hundreds of families, and use only averages—albeit the "average family" is as mythical and non-existent, except as an average, as is the "economic man." In this way we may hope to reach at least an approximate measure of man's economic psychology in the mass.

There is one field in which, without any guidance but common sense, we have expressed in figures the appraisal of mankind of the comparative value of money to people of different incomes. That field is taxation. Not only would it seem to all reasonable people unfair to assess the same number of dollars of taxes against the workingman as against the millionaire but to most people it would seem unfair to assess even the same rate per dollar of income. Even the philosophic doubter, if himself taxed unfairly, would be apt to know it! He would scarcely be satisfied if told that any comparison between his tax burden and others is meaningless because his mental phenomena and others' are incommensurable.

At any rate, whether justified or not, the method here set forth does proceed on the assumption of commensurability, and my object in setting this forth is not so much to prove it correct as frankly to face it and point it out, as an assumption.

Summary of Assumptions

The following is a complete summary of the assumptions underlying the second pair of equations, those on wantability.

(a) *Adjustment.* The budget groups used, like food, are assumed to be sufficiently subject to graduation in quantity and quality; and to be, in other ways, sufficiently adjustable, and adjusted, that *the marginal dollar of an average or typical family*

(e.g., Case 1) is worth the same subjectively in every direction, so that we need, in each Case, only one designation, such as W_1, for its marginal want for a dollar, that is its want-for-one-more dollar. Thus W_1 indicates the want-for-one-more dollar's worth of food, as well as for one more dollar's worth of housing or for one more dollar's worth of anything else.

(b) *Comparability.* Wants of different groups of individuals are assumed to be practically comparable. The behavior of the average family under varying circumstances, as exemplified in its budget and published in statistical tables according to income, size of family, character of workmen, etc., is assumed to register, and be adjusted to, the average intensities of the wants of the average families recorded in those budget tables. Thus we are permitted to compare W_1 and W_2 for instance, in the same equation, although they relate to two different groups of people, one an average of many families in Oddland, and the other an average of many families in Evenland.

(c) *Dependence of each want exclusively on the provision for that want.* Having thus acquired the right (from assumption *a*) to employ a single uniform W_1 and a single uniform W_2 instead of a multitude of unequal magnitudes, one for each use of money, and (from assumption *b*) to compare said W_1 and W_2 as applying to different people, we next assume that equal increments added to equal rations of food are equally wanted by families of equal size and character. This implies that the want for a given small increment, or improvement in quantity and quality, of a given ration (say of the common ration of Cases 1 and 2) *depends exclusively on that ration.* Thus, it will be the same for an average family of a given size and character in Oddland as it is for an average family of the same size and character in Evenland, the income of these two average families being different and only so related as to have led them to choose substantially the same ration.

It follows, since these equal increments of this ration are equally desirable, that one more dollar's worth of each ration will be desired in exact proportion to the amount which the dollar will purchase in the two markets. In other words

$$\frac{W_1}{W_2} = \frac{1/F_1}{1/F_2}$$

This is our typical want equation. It applies only when

$$\frac{S_1\phi_1}{S_2\phi_2} = \frac{F_1}{F_2}$$

i.e., applies only as between two average families, one in Oddland and the other in Evenland, whose rations are the same, or, more precisely, whose food expenditures are exactly proportional to the food price indexes of the two countries.

This implies, of course, that the want-for-one-more food unit, being dependent *only* on the food ration, is *not* dependent on the housing situation nor on any other circumstances likely to perturb the picture. In particular, it is implied that the want-for-one-more food unit of Case 1 is not dependent on the budgets, or other circumstances of the neighbors (or else that these influences are the same in the Cases compared). Likewise, it is implied that the want-for-one-more unit of shelter is independent of other budgetary items and of the neighbors' (or else that these influences are the same in the Cases compared).

(d) *Equality of price indexes* applicable to Cases 1 and 2, *i.e.* $F_1=F_3$ and $R_1=R_3$. But although this is assumed, it is not a necessary assumption. In the first place it may be pointed out that for comparison between Cases 1 and 3 this assumption is entirely superfluous since only F_1 (*i.e.* not F_3) and only R_3 (*i.e.* not R_1) enter into the formulæ.[1]

The assumption $F_1=F_3$ means that the food markets of Oddland and Evenland compare alike at both grades of food,—the grade used by Cases 1 and 2 and the grade used by Cases 3 and 4. To make the assumption more general, the market in both Oddland and Evenland are assumed to afford substantially the same grades A, B, C, D, etc., successively differing in cost by \$1 in Evenland and by \$1.33⅓ in Oddland. This assumption seems reasonable as between countries of the same sort of culture such as England and the United States, although, of course, it might conceivably be true that, say, the *inferior* grades of food in Oddland cost 133⅓% as much as in Evenland, while, say, the *superior* grades cost 120% or 150% as much. In that case F_1 would be

[1] For the comparison later on between Cases 1 and 5, both F_1 and F_3 enter and both R_3 and R_5. The assumptions in question (specifically that $F_1=F_3$ and $R_3=R_5$) are used in deriving formulæ (7) and (8); without these assumptions these formulæ would obviously be slightly different.

133⅓ and F_3 120 or 150. Even so, the formulæ slightly modified would apply if the statistics for F_1 and F_3 were separately available.

(e) *Constant ratio between the income and expenditure,* of any family, *i.e.,* either exact equality of income and expenditure or more generally, a slight excess of income over expenditure, that excess being the same percentage for all Cases. This assumption is chiefly for convenience in order that for the budget ratios, the ϕ's and ρ's may, except for a constant factor, be applied interchangeably to expenditure or income. Most actual budget statistics conform approximately to this assumption (in its second form) of a slight excess of income over expenditure.

These five assumptions—of (a) *adjustment,* (b) *comparability,* (c) *dependence of each want only on the provision for that want,* (d) *equality of price indexes* ($F_1=F_3$ and $R_1=R_3$), and (e) *constant ratio between income and expenditure,* include all we need in order to solve our problem, provided, of course, that, as first stated, our statistics are reliable. The method merely interprets *budget behavior* under these five assumptions.

If the underlying assumptions just discussed are correct and if the statistical data employed are accurate, the method here presented and its results are unassailable.

Perhaps more space has been consumed in setting forth the problem and the method of solving it than may seem necessary to some of my readers. But I am anxious, in thus breaking new ground, not to conceal or overlook any possible difficulty. If the method here proposed is some day to be practically utilized, as I hope it may be, those using the method need to know exactly what are the possible pit-falls and sources of error.

Some General Formulæ Derived

Thus far only two formulæ, or two pairs of formulæ, (1) and (2), have been reached.

More important are certain formulæ derivable from these four. Dividing the lower of the equations (1) by the upper, just as they stand, we get:

$$\frac{\dfrac{S_3\rho_3}{R_3}}{\dfrac{S_1\phi_1}{F_1}} = \frac{\dfrac{S_2\rho_2}{R_2}}{\dfrac{S_2\phi_2}{F_2}}$$

which, after cancelling S_2, may, for mnemonic purposes, best be transformed into:

$$\frac{S_3}{S_1} = \frac{\rho_2/\rho_3}{\phi_2/\phi_1} \div \frac{R_2/R_3}{F_2/F_1} \qquad (3)$$

where all the "3's" are vertically above corresponding "1's."

Similarly, dividing the lower of equations (2) by the upper just as they stand, we get

$$\frac{W_3R_3}{W_1F_1} = \frac{W_2R_2}{W_2F_2}$$

which, after cancelling W_2, may be written mnemonically,

$$\frac{W_3}{W_1} = \frac{R_2/R_3}{F_2/F_1} \qquad (4)$$

From (3) and (4), by multiplying and cancelling, we obtain

$$\frac{W_3S_3}{W_1S_1} = \frac{\rho_2/\rho_3}{\phi_2/\phi_1} \qquad (5)$$

Formulæ (3), (4) and (5) afford comparisons between Cases 1 and 3, both in Oddland; that is, they compare two families in exactly the same situation except that their incomes or expenditures, S_1 and S_3, are different. Formula (3) compares their incomes. Formula (4) compares their wants-for-one-more dollar. As the want-for-one-more dollar decreases with an increase of income, one of these two rations,

$$\frac{S_3}{S_1} \text{ and } \frac{W_3}{W_1}$$

must be a proper fraction and the other, an improper fraction. Their product is given in Formula (5).

Marginal Want for Money and the Income Tax

According to which way this product differs from unity, we have a justification for progressive or regressive taxation, while if their product is exactly unity, taxation should be neither progressive nor regressive, but strictly proportional to income. This is all on the assumption that the tax is to be laid according to the principle of equal sacrifices to tax payers of different incomes.

To show these propositions, suppose an income tax, or, to be unequivocal, a tax on expenditure, to be levied at the rate of t_1

per dollar, or per cent, on S_1, the income of Case 1, and t_3 per dollar on S_3, the income of Case 3. The total taxes will be $S_1 t_1$ and $S_3 t_3$. These are in dollars.

We assume that the taxes are small so as not appreciably to affect the income and the want-for-one-more dollar. The subjective sacrifices, at W_1 and W_3 per dollar, will then be $W_1 t_1 S_1$ and $W_3 t_3 S_3$. To conform to the principle of equal sacrifices, the above expressions for sacrifices must be equal, *i.e.*,

$$W_1 t_1 S_1 = W_3 t_3 S_3$$

or, otherwise expressed,

$$\frac{t_3}{t_1} = \frac{W_1 S_1}{W_3 S_3} = \frac{\phi_2/\phi_1}{\rho_2/\rho_3} \qquad (6)$$

the last part of this continuous equation being equation (5) inverted.

By formula (6) we can now find the theoretically just rate of progression (or regression, as the case may be) of an income tax. This formula gives, in our hypothetical example, 1.56. Thus, if out of S_1=\$1000, a tax of 1%, or \$10 is paid, then out of S_3=\$1440 a tax of 1.56% or \$22.46 should be paid (instead of \$14.40 as would be the case under proportional taxation).

Of course these figures are not statistical results, as the reader will remember that they are derived from purely hypothetical data. But they show how statistical results may be obtained.

Evidently (assuming the principle of equal sacrifices), a progressive income tax is justified if formula (6) gives a result greater than unity, a regressive tax if less than unity, and a uniform tax rate, if exactly unity.

It follows, if all our five specified assumptions are correct and if we can obtain accurate statistics to which those assumptions apply, that it will be possible to turn to practical use this highly theoretical study of the most elusive of entities with which economic science is forced to deal, "marginal utility" or the want-for-one-more unit of anything.

As we have seen, Chart I pictures the two families (Cases 1 and 2); that is, it shows the income (\$1440) of Case 3 as contrasted with that (\$1000) of Case 1 and the wants-for-more dollar, these being respectively .33⅓ wantabs and .75 wantabs. The slope of the line connecting these points determines not only

whether progressive or regressive taxation is indicated but the exact degree of progressiveness or regressiveness.

The most satisfactory way to picture this mathematically is to plot the two points S_1, W_1 and S_3, W_3 on "doubly logarithmic" paper, join these two points by a straight line, and measure the slope of that line. If the slope is 45°, then $S_1 W_1 = S_3 W_3$ and the tax should be at a uniform rate; if it slopes downward more steeply than 45°, the tax should be progressive; if less steeply, regressive. The slope itself tells us at what percentage rate the want for a dollar decreases for each 1 per cent increase in income.

This figure for the slope can, of course, be attained arithmetically without plotting.[1] This slope is what Marshall, in a different application, called "elasticity."

Extension of the Theory

All the essentials of the method have now been stated. But it may be well to point out that, by successive applications, its range can be extended indefinitely or as far as the budgetary statistics are available.

That is, we may continue to choose identical families conformably to the same prescription that for every family in Oddland there will exist in Evenland another family provided with an income such as will lead it to choose the same, and equally desirable, food ration; whereas for every such family chosen in Evenland there must be another in Oddland that will have an income such as will lead it to choose the same, and equally desirable, housing accommodation. We have hitherto supposed only Cases 1, 2, 3. We now add Cases 4, 5, 6, 7, etc., all the odd figures referring to Cases in Oddland and all the even figures to Cases in Evenland, as shown in Chart II which is merely a schedule of Cases 1, 2, 3, 4, 5, etc., with a chasm or ocean between Oddland and Evenland. Our calculations evidently constitute a sort of triangulation by which we pass back and forth from Case 1 via Case 2 to Case 3, thence, via Case 4 to Case 5 and so on. The Chart shows schematically what I mean by "triangulation."

[1] We need merely equate the logarithms of the two sides of equation (3) and likewise of equation (4) and then divide one of these new equations by the other and calculate out the right hand side on the basis of the statistical figures it contains.

Evidently, in exact analogy with equations (3) and (4), namely:

$$\frac{S_3}{S_1} = \frac{\dfrac{\rho_2/\rho_3}{\phi_2/\phi_1}}{\dfrac{R_2/R_3}{F_2/F_1}} \text{ and } \frac{W_3}{W_1} = \frac{R_2/R_3}{F_2/F_1}$$

we may obtain also

$$\frac{S_5}{S_3} = \frac{\dfrac{\rho_4/\rho_5}{\phi_4/\phi_3}}{\dfrac{R_4/R_5}{F_4/F_3}} \text{ and } \frac{W_5}{W_3} = \frac{R_4/R_5}{F_4/F_3}$$

Multiplying these together vertically, and remembering that $F_1=F_3$, $R_3=R_5$ and $R_2=R_4$, that is, that the scale of prices of the same food and the same rent in the same market are the same to different families, we obtain

$$\frac{S_5}{S_1} = \frac{\left(\dfrac{\rho_2/\rho_3}{\phi_2/\phi_1}\right)\left(\dfrac{\rho_4/\rho_5}{\phi_4/\phi_3}\right)}{\left(\dfrac{R_2/R_3}{F_2/F_1}\right)^2} \qquad (7)$$

$$\frac{W_5}{W_1} = \left(\frac{R_2/R_3}{F_2/F_1}\right)^2 \qquad (8)$$

Multiplying (7) and (8), and cancelling, we have

$$\frac{S_5 W_5}{S_1 W_1} = \left(\frac{\rho_2/\rho_3}{\phi_2/\phi_1}\right)\left(\frac{\rho_4/\rho_5}{\phi_4/\phi_3}\right) \qquad (9)$$

These results come each from multiplying two equations. Similarly, by *threefold* multiplication we can obtain $\frac{S_7}{S_1}$ and $\frac{W_7}{W_1}$, by *fourfold* multiplication, $\frac{S_9}{S_1}$ and $\frac{W_9}{W_1}$, etc., indefinitely. The values of S_1, S_3, S_5, S_7, S_9, etc., can thus be calculated and will successively increase (or successively decrease, as the case may be) indefinitely, while W_1, W_3, W_5, W_7, W_9, etc., will do the opposite.

We can thus (if suitable statistics are at hand) locate any number of points on the curve in Figure I connecting income and the marginal want for money, instead of only the two which were plotted. Unfortunately, as yet, we do not have many statistics

of family budgets beyond the lower incomes, those of workingmen.

And just as, through Case 2 in Evenland taken as a yardstick, we are enabled to compare Cases 1 and 3, both in Oddland, so Case 3 could be used as a yardstick to enable us to compare 2 and 4—both in Evenland—and then go on to 6, 8, etc. In this way we could construct a series of points on a corresponding curve for Evenland.

Comparison Between Two Countries Possible

Moreover, not only can we thus compare wantabilities between different families in one and the same country under the same set of prices and general conditions and subject only to differences in income, but we can also make comparison between the two countries, involving different prices as well as different incomes.

All the foregoing calculations are supposedly worked out by using the two sub-groups specified, food and rent. But the same method applies with any other two sub-groups—food and clothing, for instance, or clothing and rent, as long as the three specified assumptions apply.

Moreover, the same method may be applied to two different *times* instead of two different places, using, say, 1927 instead of Oddland and 1900 instead of Evenland.

Wantability Curve for Any Commodity Group

Thus far the only curves of want constructed relate to total income, giving quantitatively the "law of diminishing utility" by which the subjective value of a dollar diminishes as the number of dollars in one's income increases. But by similar methods we may construct wantability curves for the sub-groups, food, rent, clothing, etc.

Let us take the food group, for instance. The money expenditures for food in Cases 1 and 3 were $S_1\ \phi_1$ and $S_3\ \phi_3$; while the physical quantities—what we first called "pounds," but what, more exactly, may be described as an index of food consumption—are $\frac{S_1\phi_1}{F_1}$ and $\frac{S_3\phi_3}{F_3}$. The corresponding marginal wants,—*i.e.*, for food per "pound,"—we found to be $W_1 F_1$ and $W_3 F_3$. These last four expressions relating to food, the first pair being "physical" quantities (or indexes thereof) and the second pair being their

marginal wantabilities per unit of physical quantities, may now be compared in exactly the same manner as were compared S_1, S_3, W_1, W_3, relating to total income. The ratio between the number of "pounds" of food consumed by Cases 1 and 3 (or more strictly between their indexes of food consumption just mentioned) is

$$\frac{S_3\phi_3/F_3}{S_1\phi_1/F_1}.$$

Cancelling F_1 and F_3, they being equal, we obtain

$$\left(\frac{S_3}{S_1}\right)\left(\frac{\phi_3}{\phi_1}\right)$$

Substituting for $\frac{S_3}{S_1}$ its value as given by equation (3), we obtain, as the ratio of the physical consumption of food for Cases 1 and 2:

$$\left(\frac{S_3}{S_1}\right)\left(\frac{\phi_3}{\phi_1}\right) = \frac{\rho_2/\rho_3}{\phi_2/\phi_3} \div \frac{R_2/R_3}{F_2/F_3} \qquad (10)$$

We note that the right hand member of this equation differs from Formula (3) only in that ϕ_1 is now replaced by ϕ_3 (F_3 being the same as F_1).

The corresponding ratio for marginal wants of food per physical unit is $\frac{W_3F_3}{W_1F_1}$. Cancelling the equal F's, we get the equation (4) over again, *i.e.*:

$$\frac{W_3F_3}{W_1F_1} = \frac{W_3}{W_1} = \frac{R_2/R_3}{F_2/F_3} \qquad (4)$$

Similarly, remembering that $R_1 = R_3$ and again using equation (3), we obtain, for the sub-group rent, the two equations:

$$\frac{\frac{S_3\rho_3}{R_3}}{\frac{S_1\rho_1}{R_1}} = \left(\frac{S_3}{S_1}\right)\left(\frac{\rho_3}{\rho_1}\right) = \frac{\rho_2/\rho_1}{\phi_2/\phi_1} \div \frac{R_2/R_3}{F_2/F_3} \qquad (11)$$

and

$$\frac{W_3R_3}{W_1R_1} = \frac{W_3}{W_1} = \frac{R_2/R_3}{F_2/F_3} \qquad (4)$$

or (4) once again.

Multiplying (10) and (4) we obtain:

$$\frac{S_3\phi_3W_3}{S_1\phi_1W_1} = \frac{\rho_2/\rho_3}{\phi_2/\phi_3} \qquad (12)$$

Similarly, multiplying (11) and (4) we obtain

$$\frac{S_3\rho_3 W_3}{S_1\rho_1 W_1} = \frac{\rho_2/\rho_1}{\phi_2/\phi_1} \qquad (13)$$

Before we can plot the want curve for food we need to get ϕ_3 from the budget tables; and before we can do the same for rent we need similarly to find ρ_1.

Suppose we find ϕ_3=30% and ρ_1=24%; we now have all the data needed for calculating and plotting the two want curves (for food and shelter). All our data may be tabulated for reference as follows:

S_1 = \$1000 per year	S_2 = \$600 per year	S_3 = \$1440 per year
ϕ_1 = .40	ϕ_2 = .50	ϕ_3 = .30
ρ_1 = .24	ρ_2 = .20	ρ_3 = .25
F_1 = \$1.33⅓ per "lb."	F_2 = \$1 per "lb."	F_3 = \$1.33⅓ per "lb."
R_1 = \$3 per "sq. ft."	R_2 = \$1 per "sq. ft."	R_3 = \$3 per "sq. ft."
W_1 = .75 wantabs	W_2 = 1 wantab	W_3 = .33⅓ wantabs

In this table the four *given* magnitudes are S_2, F_2, R_2, W_2, all in the middle column and three of them being the units of measurement assumed.

The remaining magnitudes are all calculated from these four, or obtained from budget tables or from our assumed conditions.

We could now easily plot the quantity of food and its wantability from

$$\frac{S_1\phi_1}{F_1} = \frac{1000 \times .40}{1.33\frac{1}{3}} = 300.00$$
$$W_1F_1 = .75 \times \$1.33\tfrac{1}{3} = 1.00$$

these two being the "latitude and longitude" of one point (that for Case 1); and, likewise plot the analagous quantity and wantability for Case 3:

$$\frac{S_3\phi_3}{F_3} = \frac{1440 \times .30}{1.33\frac{1}{3}} = 324.00$$
$$W_3F_3 = .33\tfrac{1}{3} \times \$1.33\tfrac{1}{3} = .44.$$

Such a curve would be none other than the "curve of diminishing utility of food" used in our text books but not hitherto reducible to statistics.

The figures show that (according to our purely illustrative data) if the quantity (or, more strictly, index) of food consumed is increased from 300 to 324 the want-for-one-more unit of it decreases from 1.00 to .44 wantabs.

The curve could, of course, be extended to other points corresponding to Cases 3, 5, 7, etc., and could be drawn on "doubly logarithmic" paper and treated as we have indicated for the want-of-income curve.

Similarly the want-for-one-more "sq. ft." of rent or shelter may be worked out as follows:

$$\frac{S_1\rho_1}{R_1} = \frac{1000 \times .24}{3} = 80.00$$
$$W_1R_1 = .75 \times 3 = 2.25$$

giving the point in the curve corresponding to Case 1; and, for Case 3:

$$\frac{S_3\rho_3}{R_3} = \frac{1440 \times .25}{3} = 120.00$$
$$W_3R_3 = .33\tfrac{1}{3} \times 3 = 1.00$$

from which we see that an increase from 80 to 120 "sq. ft." diminishes the marginal wantability of shelter from 2.25 to 1.00 wantabs.

According to these figures the food curve descends faster than the rent curve, this being due in the calculations to the more rapid change of the percentage (ϕ) spent on food with a given change of income as compared with the corresponding change in the percentage (ρ) for rent. Thus by means of our formulæ we extract from "Engel's law" its true significance psychologically.

In the same way we may calculate the curves for clothing or any other consumption group, provided it is reasonably independent of the other groups. It is not feasible to construct any curve for bread, or butter, potatoes, or other items, the substitutes and complements of which have an important influence on their wantabilities. The reason is that a *curve* can only represent a variable as dependent on *one* other variable. When, as in the case of, say, bread or butter, its wantability depends on many variables (*e.g.*, on the quantities of bread, butter, potatoes), we need something more than a curve. A *surface* can show one variable dependent on two others. Beyond that no purely geometric representation will suffice, although a set of numerical schedules might conceivably be made out.

Of course, these want curves or want schedules, when taken in conjunction with the want curve for income, first discussed, underlie demand curves and schedules.

Evidently a demand schedule is not the simple thing it seems and I distrust statistically calculated demand curves except as they represent the temporary situation in the market as concerns substitutes, complements and money valuation. But a statistical determination of the subjective value of income as a whole and of "physical" indexes of its constituent groups, such as food, clothing, housing, etc., seems a practical possibility.

Conclusion

I have emphasized the fact throughout that I am here offering no statistics but only a statistical method. I have, however, applied the method to certain available statistics of the U. S. Bureau of Labor Statistics. The results confirm the common idea that progressive rather than regressive taxation of incomes is justified.

I do not give these statistical figures here because the data need to be "smoothed" and subjected to critical analysis for varying size of family and other complications before the results can be considered even roughly accurate. Thus, the actual application of the formulæ here given to statistical use is deferred for another paper. If someone else than I will perform this arduous task I shall be more than pleased.

The only important point which is made in the present paper is that if we have given budget tables for two different places (or times) relating to families presumably very similar in all essential particulars and have given also the relative price levels for both places or times for each of the budget groups (such as food, clothing, or rent), and if these relative prices diverge sufficiently from each other, our formulæ ought to give results of at least some statistical value.

ALTERNATIVES SEEN AS BASIC ECONOMIC FACTS

Franklin H. Giddings

In the early eighties a young newspaper man following his craft at Springfield, Massachusetts, had the good fortune to become acquainted with Professor John Bates Clark, then of the Faculty of Smith College at Northampton. Opportunity favoring, the acquaintance became intimate, and developed into a life-long friendship. The newspaper man was presumptuously writing daily editorials on the tariff, money, and labor troubles. Professor Clark had formulated his *Philosophy of Wealth* and was working out its implications. The younger man fell under the spell of it, and, encouraged by his preceptor began making excursions of his own in the domain of theory. At Professor Clark's suggestion four articles were written, two by himself and two by the novice, presenting four aspects of economic distribution under changing modern conditions. These papers, published first in the *Political Science Quarterly,* afterwards appeared in book form as *The Modern Distributive Process.* The younger writer from time to time made further small contributions to journals and to the programmes of the American Economic Association, nearly all of them studies in theory. Because of that episode, perhaps, it is now his privilege, after many years of activity in another field, to contribute a few pages to this volume of tribute.

Acknowledging myself to have been the party of the second part, I may perhaps be indulged in a further prefatory word. I have now and then been asked why I deserted economics for sociology. The answer is that I did no such nefarious thing. The truth is that I came near deserting sociology for economics. My interest in sociology had been awakened by Herbert Spencer's chapters on "The Study of Sociology," published serially in *The Popular Science Monthly.* They had convinced me that whether or not sociology could become an acknowledged science, it should

be possible to study human society in a scientific spirit and by scientific methods, and I had resolved to attempt to do at least that. My interest in economics was at first wholly practical. A trifling contribution that I made to newspaper discussion of the protective tariff happened to be read by David A. Wells who wrote me a kindly letter and sent me a generous gift of his publications. Professor Arthur Latham Perry also wrote to me and his text book was my first systematic reading in Political Economy. Subsequently, to qualify myself as best I could for editorial writing I read Francis A. Walker on *The Wages Question* and on *Money,* and Jevons on *Money and the Mechanism of Exchange.* After that I worked through Adam Smith, Ricardo, Cairnes, and Jevons. That was my mental preparation for the stimulation which I was destined to get from Clark. So almost I was persuaded to be an economist. I taught economics for six years at Bryn Mawr College, and at Barnard College three years more, after I had joined the Columbia Faculty. The man who more than any other was responsible for holding me to sociology was that prince of counsellors, the lamented Herbert B. Adams. But that is another story, which I must not linger over here.

When I was compelled by the limitations of human energy to curtail my working day and to discontinue writing on economic topics, my scheme of theory was left at loose ends. All that I attempt now as my small contribution to this *Festschrift* is to show, with extreme brevity, that these threads weave together in a pattern.

I conceive the pattern as emerging from certain alternatives of practical choice and behaviour by which man in his struggle for betterment is confronted; and the alternatives I see as basic economic facts, upon which economic theory must build.

The first of these alternatives curtly stated is, *Be helped or perish;* or, yet more curtly put in the tart language of slang, "Be cared for or be done for."

From the standpoint of the classical economics this proposition is rank heresy. To the late William Graham Sumner, whose hard-headedness was almost genius, it was anathema. Man he admonished us, can have nothing to enjoy or to save one moment before he has earned it. But look at the most obvious facts. The chick can "scratch gravel" and begin to pick up digestible bits a few hours after breaking its shell. The human infant must

be protected and fed, and the more complex the life into which he is born the longer and more elaborate must be the unearned provision made for him. He must be educated, and for the higher walks of life, expensively educated. As he begins to earn he must find kindly fellow men willing to take the trouble to put up patiently with his blunderings, in faith that he may presently amount to something. He may need gifts, or loans, of capital. Can we doubt that in the infancy of the human race those bands survived and improved in which there were beginnings of mutual aid, and to which nature gave bounty no less than adversity? Can we doubt that the American people is the economic giant of today because it found awaiting its exploitation unexampled unearned resources, to be had for the taking?

All this is platitude, of course. But it is more. It carries the implication that while there is an economy of a biological sort (an ecology) which is antecedent to the scheme of relationships and activities which we call Human Society, it is no less certain that society is antecedent to all that we nowadays call the economic life, the life of the *oikos*, of the business world, of the nations. Some such thought as this I suppose was in the back of my head when I wrote the first paper that I read before the American Economic Association, namely, "The Sociological Character of Political Economy."

The second alternative, curtly stated is: *Help, or be thrown out.* The day comes when the man who has been "brought up," who has been sustained before he could "earn his keep" must begin to earn and to do as he has been done by. He can no longer be a burden. He must work, or now, in the normal course of things, he must starve. More, he must lend a hand, he must coöperate. It is not enough that he provide for himself. And this, as before, is because he is not an isolated being; he is part of a scheme of things, a society. Once a Yale student was asked by Professor Sumner what a Robinson Crusoe would need to begin an economic life with. The boy shot back, "Free trade, hard money, and a stick." Like enough. Not being a Crusoe the normal man, whatever else he has to begin life with, must at all costs have the appraisal of his fellows as a creature sufficiently worth while to be allowed to live. In savagery, if he fails to achieve such valuation he may be outlawed or knocked on the head. In civilization he is an outcast from respectability,

despised and shunned. He may be locked up or otherwise segregated. Economic values arise early, but social values arise as early and possibly are antecedent.

These first two alternatives constrain us to abide in society and to lead an economic life. Their relation to economic theory strictly defined, however, is relatively remote. Closer to it is a third alternative, namely: *Think creatively or accept the economics of exploitation.*

For two thousand years after Plato and Aristotle had found slavery necessary to civilization slavery and the near slavery of serfdom persisted in Christendom. To this present hour strong nations continue to subjugate and to exploit weaker ones, Economically powerful groups (financial, commercial and industrial) continue to exploit the so-called masses. Humanitarians revolted against serfdom and against slavery but their efforts availed little until invention came to their aid. It was neither preaching nor agitation but the steam engine and power-driven machinery that abolished slavery. It is highly probable that electro-physics, chemistry, and biology will one day be more effective than pacifist ethics in preventing war, and more effective than strikes and boycotts in further ameliorating the wages system.

When Professor Clark and I were actively exchanging ideas he was formulating his discrimination of pure from concrete capital.[1] He went on to work out the implications of his idea for the theory of values. I became interested in the economic possibilities of a progressive production of concrete goods, material wealth. I wanted to discover whether we may hope to carry further indefinitely nature's processes of assembling, correlating and coördinating elements into compouds, and compounds into bigger and more complex compounds *under conditions of varying cost.* Specifically I was interested in the possibility (which I could not believe unlimited) of increasing that supply of unconsumed wealth which Adam Smith had called "stock," which the Austrians were calling "present goods," which Professor Clark identified with "concrete capital," and which I presently called "capital goods." [2] Yet more specifically I sought an answer to a question which I think had not before been raised,

[1] "Capital and Its Earnings," *Publications of the American Economic Association,* Vol. III, No. 2, May, 1888.

[2] *Quarterly Journal of Economics,* Vol. IV, January, 1890, p. 178.

namely: In a given situation, and within a given period, during which the standard of living is held constant, and the material means of production (tools, machines, and structures) undergo no substantial change in kind or quantity, is it possible by thrift (saving and industriousness) substantially to increase *the rate of accumulation* of concrete capital without putting increasing strain upon the agents and instruments of production at the moment existent and functioning, and thereby increasing the unit cost of accumulating capital?

The results of my study were presented in three articles.[1] These called forth criticisms from Professor Böhm-Bawerk and Mr. James Bonar.[2] To my contentions relative to the cost of production of capital goods and the cause of interest I shall return presently. At this point I speak only of my contribution, if such it was and is, to the explanation of the effective nature and functioning of concrete capital and its relation to a possible escape from the economics of exploitation.

Borrowing an idea from Francis A. Walker's definition of money I maintained that concrete capital is what concrete capital does. From this proposition it follows that not all "present goods" or "stocks" are capital goods, or capital goods in equal degree. They must be capitalized in a productive process and I undertook to show *how*.

Böhm-Bawerk had shown in the *Positive Theorie des Kapitales* that capitalistic production differs from production by unaided human labor in being less direct, by reason of the interpolation of intermediate products between the beginning of labor and the completion of the final goods, and that such indirect production is more fruitful than direct production is because every intermediate product enlists the coöperation of an auxiliary force (*einer Hilfskraft*). What he had not shown, and what no writer before him had shown was, the specific thing that the intermediate product must be in order to enlist the coöperation of an auxiliary force.

Starting from Spencer's definition of life as a continuous adjustment of internal relations to external relations, I argued that pro-

[1] "The Cost of Production of Capital," *Quarterly Journal of Economics*, Vol. III, July, 1889; "The Theory of Capital," *ibid.*, Vol. IV, January, 1890; and "The Growth of Capital and the Cause of Interest," *ibid.*, Vol. V, January, 1891.

[2] *Quarterly Journal of Economics*, Vol. IV, April, 1890.

gressive economic production is just one part of a continuing interchange of matter and energy between organism and environment *in combinations of increasing complexity*. The evolution of utility I said is a process of correlation and coördination. In capitalistic production we have a lengthening series of preliminary correlations and coördinations. Every intermediate product must be a complex of such preliminary correlations and coördinations, and if it is to be in fact *einer Hilfskraft* it must be the precise complex that fits exactly into a combination of increasing complexity. The fitting in of exactly the right product in exactly the right place is specifically what is involved in the "capitalization" of "stock." It calls for invention in the ordinary meaning of the word, and a good deal more. It calls for the organizing and adjusting functions of the entrepreneur and of the financier. Capitalization, then, as here described, is the creative thinking which is imperative if we are to escape from the economics of exploitation.

These considerations bring us to our fourth basic economic fact, which is the alternative: *Speed up and work overtime or fail to capitalize; fail even to have stock to capitalize.*

Many of the complexes of preliminary correlation and coördination are provided for us by nature. Primitive man, the tool making animal, invented others, the first intermediate products of Böhm-Bawerk's lengthening series. Modern man, the machine maker, has added an incredible number, all of marvelous complexity.

How has the accumulation of these intermediate products been effected? I confess to amazement that economists should ever have taught that the word "saving" conveys an adequate answer. To have saving there must be something that can be saved, and there must be a motive for saving. Consider, then, the case of a man who is so circumstanced that he must toil from sun to sun to obtain enough food, fuel and other necessaries to sustain life. That man, at least, whatever may be true of another, can get something to save only by working over-time or harder. Or consider the case of a man content with a low standard of living. He does not save.

But, we are reminded, multitudes of human beings have enjoyed the luck of living indolently in bountiful environments, and as for the rest of us tools and capitalistic processes have enabled us

to produce wealth enormously in excess of the bare necessaries of life. Must we, then, *now* speed up and work over-time in order to have stock to capitalize and to capitalize it? Is this hard fate the normal economic lot of man? Unhappily I am convinced that it is. I think it demonstrable that the normal increase of population, and the unceasing effort of man to raise his standard of living keep him forever at tension, and that therefore he provides himself with stock to save only by speeding up and working over-time. I shall not here undertake to prove that increasing population and a rising standard of living do create the tension, but shall content myself with the "therefore."

It will not be denied, I assume, that unless the standard of living is raised, the motive to go on saving and capitalizing fails, nor will it be denied that if population presses on the wherewithal of existence (construed as the standard of living) stock can be increased and capitalized in one of two ways only (1) through saving by cutting out luxuries and comforts, *i.e.*, lowering the standard of living, in which case motive is impaired; or (2) by working longer hours and harder. We seem therefore to be driven to the conclusion that (2) is the normal way, and must continue to be the normal way of accumulating capital goods and expanding capitalistic production.

Reservations, perhaps denials come to mind. It may be alleged that the motive to save is not impaired by present frugality for the purpose of maintaining or raising a standard of living in the future, for self or family. This might be conceded but for three stubborn facts: One, the force of the motive to save for the future is weakened in modern populations by a common and intrenched belief that a certain amount of "conspicuous waste" is necessary to maintain social standing, and that social standing is necessary to insure economic standing and family advancement. Two, a considerable part of any "provision for the future" ultimately disappears in "deferred consumption," and so from the productive process. And three, humans of the vigorous sort obviously prefer to work over-time (for a price) than to attempt severe retrenchment of expenditure.

A further reservation and contention, namely, that improved machinery and better processes provide us with surplus goods to capitalize, I think wholly invalid, because it confuses dates. How do we get the better machines and so on, and *what do we do*

until we get them? We speed up the machines that we *now* have and work over-time.

In generalized form, then, my proposition is: In any given state of population and the arts, the standard of living remaining constant or rising, we normally increase stock (surplus goods) and capitalize it, by speeding up and working over-time.

If the proposition holds, a vitally important further proposition follows from it. There is a limit beyond which the prolongation of human labor without rest, a point beyond which increasing intensity of effort, a point beyond which speeding up machinery, are rewarded by diminishing return. This means increasing unit cost of product. Accordingly, the rate of accumulation of stock to capitalize and the rate of capitalization can normally be increased only at an increasing unit cost.

The propositions now arrived at are linked with a fifth basic economic fact, namely: *Pay interest or lose your chance.* This is the "now or never" alternative.

In the discussion that arose over Böhm-Bawerk's *Positive Theory of Capital* the distinction was made clear between (a) an incremental product of goods and (b) loan interest or true interest. The one consists of concrete goods in excess of the goods used up as capital goods in producing them. The product may or may not have a value greater than the value which the concrete capital used up had. That is to say, the increment of product may or may not be an increment of value. Loan interest or true interest is a sum of money or a credit, paid for the temporary possession of a sum of pure capital (money) borrowed, or of credit extended. In terms of value the relation between producer's increment and loan or true interest is a fluctuating one, but always there *is* a relation between the unconsumed "stock" of concrete goods and loan interest. By all parties to the long continued controversy over the nature and cause of true interest it has been assumed that pure interest is a difference between a present and a future value of the same or equivalent concrete goods. However it may be disguised by the mediation of money or of credit, pure interest is a price paid for the immediate delivery of existing goods to be returned, replaced or paid for in the future. This price presumably is quantitatively determined by (1) the demand for immediate delivery, and (2) the supply of immediately deliverable goods. The second condition

has been nearly ignored in economic theory for more than thirty years. Believing as I still do (and more strongly than ever) that the supply of loanable present concrete goods is a factor in true interest, and that such supply is in a specific way conditioned by cost, I venture once more to state (in four sentences) the bit of interest theory that I offered in 1889, 1890, 1891 as follows:

The supply of immediately deliverable goods can almost instantly be increased by accelerating the processes of production. Accelerated production is more costly than production at usual speed. It is therefore the abnormal cost of accelerated production which normally limits the supply of immediately deliverable goods. Therefore the abnormal cost of accelerated production is a factor in the rate of true interest.

The Austrian theory of interest occupied itself almost wholly with the stronger demand for present than for future goods. Later theory has not advanced much beyond it, or much beyond the Austrian explanation of the preference for the bird in hand. Stripped of various wrappings it amounted to an affirmation of impatience. We must have this, that and the other thing *now*, it was argued, because we are too childish to be able to wait. Every suggestion, even when entertained or advanced by Böhm-Bawerk himself, that the sooner we get capital goods in hand, the sooner we can begin to make them earn for us, was handled with extreme caution as likely to lead us into the bog of a "productivity theory" of interest. I have to admit quite shamelessly that I have never been able to take the impatience explanation seriously. It is a rather extraordinary Hamlet with Hamlet left out.

It is not because we cannot wait for a while that we demand capital goods now instead of tomorrow; it is because so often it happens that unless we can have capital goods now we must forego using them forever. The boy who wants an education in civil engineering must get it in youth or early manhood or never be a civil engineer. Opportunities come to the young lawyer, the young surgeon, the young chemist, which will not return. They come to the business man, to be held by "refusal" for a few days at the longest, then to be taken or for all time relinquished.

This is just another way of saying that there are limits to that instant production of present goods by working over-time or harder, about which we were a moment ago discoursing. Increas-

ing cost and diminishing return stop the wheels at last, and drop the man. He then faces a new alternative. He gives another expression to his demand for present goods, without which he must lose his chance. He pays interest.

Look at the matter any way you will. We must have present goods that can be capitalized, and we must capitalize. But that we may have goods to capitalize somebody must speed up and work over-time, and the rest of us must now and then pay interest or lose our chance.

The sixth and last of the basic economic facts here to be named is the alternative: *Value-making must proceed rationally and realistically or it will proceed non-rationally and fantastically.* The economist does not have to assume that objective value, or price, expresses anybody's *calculation* of utility. He may discover that it does not. Until we are able to make intellectual estimates of desirability we are free to measure it by "hunches," wishful thinking, and credulity, in short, emotionally, and we do.

It would be difficult to prove that the "classical" economists consciously assumed that values are measures of utility arrived at by calculation, but their pages abound in evidences that often they made the assumption unconsciously. Cournot and Bentham prepared the way for overt declaration that values essentially are such measures, Jevons, Menger, and Von Wieser made it. In a paper on "Concepts of Utility, Value and Cost," [1] I undertook to give it definite and explicit expression. It can no longer be defended, except as an affirmation of what might be expected to occur in a world predominantly and highly intelligent. Our later psychology forbids us to affirm this of the world in which we now carry on. It is one of the striking evidences of prescience in Professor Clark's account of value that it leaves the way open for a broader view. And one of his distinguished former students, Dr. B. M. Anderson, sometime professor of Economics at Columbia and at Harvard and now Economist of the Chase National Bank, has sketched the broader view in his study of *Social Value.*

So, once more, we drift back to "the sociological character of political economy."

[1] *Publications of the American Economic Association,* 1891, Vol. VI, and see *ibid.,* "The Idea and Definition of Value," Vol. VIII.

LES COOPÉRATIVES DANS LES PAYS LATINS
UN PROBLÈME DE GÉOGRAPHIE SOCIALE

Charles Gide

I

La coopération est une plante singulière qui ne fleurit et ne porte de fruits que dans le Nord et ne fait que végéter dans le Midi. Prenez une carte d'Europe; elle est coupée pàr le 45° degré de latitude, qui est à égale distance du pôle et de l'équateur, en sorte qu'on peut dire que c'est la ligne de démarcation entre le Nord et le Sud. Eh bien c'est au-dessus de cette ligne que vous trouvez ces géants de la coopération qui sont la Russie et la Grande Bretagne, l'Allemagne, qui est aussi un grand pays coopératif, puis ces deux petits pays qui ont mérité le nom de perles de la coopération, le Danemark et la Finlande, puis aussi les Etats scandinaves, les Etats baltes, la Belgique, la Suisse, la Tchécoslovaquie, l'Autriche, la Hongrie, la Pologne, tous pays où fleurit l'oranger.

Et quels pays trouvons-nous au sud de cette figure? L'Italie, l'Espagne, le Portugal, les pays de la péninsule Balkanique, la Grèce—tous pays où la coopération n'existe qu'à l'état disséminé.

Quant à la France elle est juste à cheval sur cette ligne de démarcation.

Le contraste est d'autant plus frappant qu'on s'écarte de la ligne médiane. Montez vers l'extrême Nord, vous trouvez des coopératives au milieu des glaces de l'Islande; mais vous vous n'en trouvez point dans les îles heureuses de la Méditerranée où fleurit l'oranger.

De même en Amérique, quoique le contraste soit moins apparent parce que la coopération n'y est nulle part très dense. Néanmoins, il y a des coopératives aux Etats-Unis, et plus encore, proportionnellement à la population, dans la Canada et jusque dans la zone polaire de l'Alaska; mais dans toute l'Amérique du

Sud, l'Argentine est la seule, qui compte quelques coopératives natives et peu importantes.

Voici un peu de statistique pour montrer combien les pays du Midi sont encore fort en retard.

Si nous prenons comme mesure de leur développement le nombre de personnes adhérant aux sociétés coopératives de consommation (je dirai tout à l'heure pourquoi je ne regarde que celles-ci), nous constatons que le nombre de ces coopérateurs en totalisant les pays du Sud sus-indiqués, ne dépasse guère trois millions. On ne peut le fixer qu' à un million près, mais cette incertitude même est déjà une marque d'infériorité, car elle indique un manque d'organisation et un état de dispersion des sociétés qui ne permet pas de dresser une statistique. Elle révèle aussi l'indifférence des sociétés locales qui ne se font pas connaître, vivent en sauvages, et ne prennent pas la peine de répondre aux questionnaires qui leur sont envoyés par les fédérations centrales et par les administrations publiques. On peut dire que l'incertitude des renseignements sur la population coopérative est un des critériums les plus sûr du degré d'avancement du mouvement coopératif. En Suisse et en Angleterre, elle est presque parfaite et régulièrement tenue à jour. En France, elle est encore assez incertaine et toujours en retard de trois ou quatre années.

Dans les pays que je viens d'énumérer, on n'a que quelques chiffres dispersés. Même en Italie, qui est le plus avancé de beaucoup de tous ces pays au point de vue coopératif, jamais on n'est arrivé à établir une statistique exacte des sociétés coopératives, malgré de nombreuses tentatives faites par la Fédération centrale et par l'Administration publique. On n'en a publié que de fragmentaires, et depuis les derniers événements par suite de la désorganisation qui est résultée du coup d'état fasciste, c'est l'ignorance absolue.

On peut très grossièrement évaluer pour l'Italie le nombre des membres des coopératives de consommation à 1 million (encore ce chiffre doit être réduit depuis le fascisme) ; pour la Roumanie, à 300.000; l'Espagne, 80.000; le Portugal, la Grèce, la Bulgarie, la Serbie-Croatie à peut-être une centaine de mille, au total. Si même, forçant un peu le chiffre pour arriver à 1.500.000, nous comparons ce chiffre, soit à celui de la population de ces pays, soit à celui des coopérateurs européens dans leur ensemble, nous serons frappés en voyant combien il est misérable. Le nombre

total des coopérateurs en Europe est d'un peu plus de 25 millions, soit en multipliant par 4 pour tenir compte des membres de la famille, de 100 millions, sur une population totale pour l'Europe de 460 millions, soit une proportion d'environ un quart. Mais dans certains pays, la proportion s'élève à 40%, et même à la moitié. Or, la population des sept pays de l'Europe méridionale, réunis, est de 105 millions; ils devraient donc, s'ils étaient dans la moyenne européenne, compter plus de 5 millions de coopérateurs inscrits, au lieu de 1.500.000. La population coopérative dans ces pays ne représente donc que 1½ p. 100, et même si l'on multiplie par le coefficient 4, on n'arrive qu'à 6 p. 100 de la population totale; c'est-à-dire sur 15 à 16 personnes, il n'y a qu'un seul coopérateur (je ne parle que des coopératives de consommation).

Si on classe les pays d'Europe qui sont au nombre de 29 depuis la guerre (avant ils n'étaient qu'au nombre de 20), selon le nombre absolu des coopérateurs et selon la proportion au chiffre de la population, on voit que l'Italie n'occupe que le 5e rang comme nombre absolu, le 7e comme nombre proportionnel; la Roumanie, le 13e et le 19e; l'Espagne, le 25e; le Portugal, la Bulgarie, la Serbie, la Grèce, les tout derniers rangs.

Il n'y a pas seulement l'infériorité numérique, mais aussi celle de l'organisation. Aucun de ces pays ne possède cet organe central et vital qu'est le Magasin de Gros. Il y en a bien eu un en Italie mais qui n'a mené qu'une existence misérable, avant même d'avoir disparu dans la bourrasque fasciste.

La coopération serait-elle une question de latitude, de climat? Sans doute l'infériorité du Sud relativement au Nord est un fait que nous venons de constater. Mais quelle relation de cause à effet peut-on imaginer entre le climat et l'association coopérative? Peut on croire que, tout au moins en ce qui concerne la société de consommation, celle-ci, par définition, répond mieux aux besoins des gros consommateurs, tels que les gens du Nord, les Anglais, gros mangeurs de bœuf et de pudding, plutôt qu'aux méridionaux, qui n'ont besoin pour vivre que de peu de choses, les Italiens de macaroni, les Espagnols de pois chiches, les Roumains de bouillie de maïs, les Grecs de raisins secs ou d'olives?

Mais cette explication simpliste doit être écartée avec un sourire, car si les Italiens, les Espagnols, et les peuple des Balkans, sont sobres, ils ont par contre les plus nombreuses familles de

tous les pays d'Europe, en sorte que leur consommation familiale doit être relativement considérable. Et le fait que leur menu est peu varié doit être regardé au contraire comme une condition favorable à l'établissement des coopératives, car s'il suffit à une coopérative italienne d'avoir un magasin, quatre ou cinq marchandises, pain, vin, pâtes alimentaires et fromage, c'est là une grande simplification que nos sociétés du Nord, obligées de tenir un approvisionnement très varié, ont bien sujet de leur envier.

Cherchons donc ailleurs, et au lieu d'interroger le ciel interrogeons la terre. Nous remarquerons que les pays du soleil ne sont pas les pays de la houille; il n'y a point de mines de charbon en Italie, en Espagne, en Portugal, ni dans l'immense Afrique, aussi loin que vous descendiez au Sud; et même fort peu dans la France du Sud. Même différence d'ailleurs entre les deux Amériques. C'est dans le Nord que se trouve la houille. Curieuse loi qui limite le royaume de la houille là où commence le royaume du soleil! comme si la nature prévoyante avait pensé que ceux de ses enfants à qui elle avait donné pour richesse le soleil n'avient pas besoin, par surcroît, de charbon.

Et ainsi, tout semble s'expliquer bien mieux, car les pays de la houille sont ceux des grandes cités industrielles, et naturellement la coopération trouve un milieu plus favorable dans les populations industrielles groupées autour des mines, des hauts fourneaux et des usines, que dans les populations agricoles ou de petite industrie. Le facteur géologique n'agit donc ici que par l'intermédiaire du facteur économique. Le charbon crée l'industrie et l'industrie à son tour crée l'association coopérative.

Il semble qu'ici nous approchons de la solution. Toutefois, ce n'est qu'à regret que j'accepterais cette explication matérialiste. Voici d'ailleurs ce qui complique le problème. Si au lieu d'opposer en bloc tous les pays du Midi aux pays du Nord, nous considérons ces pays séparément, nous voyons se produire pour chacun d'eux le même phénomène: cette localisation de la coopération dans le Nord se retrouve dans chacun d'eux séparément. En Italie, c'est en Piémont et en Lombardie, c'est à Turin, à Milan, à Trieste, que l'on trouve les grandes coopératives. On en trouve encore dans la Toscane et l'Emilie, mais à Rome et surtout au-dessous de Rome, presque plus rien. En Espagne il n'y a que deux foyers coopératifs, celui de Catalogne, à Barcelone, et celui de Biscaye, autour de Bilbao: ce sont les deux provinces de l'extrême-nord. La

coopération ne descend guère au-dessous de Valence (Espagne). Et pourtant, le nord de l'Italie et de l'Espagne sont naturellement à une latitude inférieure à celle du midi de la France, que je disais tout à l'heure stérile! Ce n'est donc pas une question de latitude. D'autre part, il n'y a point de mines de charbon dans le Nord de l'Italie, ni dans le Nord de l'Espagne; seulement des mines de fer, il est vrai, proches de Bilbao—en sorte que notre explication de la houille fait aussi défaut.

Il semble que dans chaque pays séparément il y ait une sorte de polarisation qui concentre les énergies dans le Nord, car remarquez que ce n'est pas seulement pour le mouvement coopératif mais dans toutes les manifestations de la vie nationale que ce curieux phénomène se reproduit. Dans l'ordre politique, c'est le Piémont, la Maison de Savoie, qui a fait l'unité italienne. Ce sont les provinces des Asturies et de Biscaye, au pied des Pyrénées, qui ont été le dernier refuge des rois catholiques, lors de l'invasion maure. Et c'est de là qu'ils sont partis pour reconquérir toute l'Espagne.

De même, on sait que c'est l'Ile-de-France qui a été le centre de cristallisation du royaume de France.

Il y a donc là un problème de géographie humaine, dont je n'ai pas l'explication.

II

Cherchons donc une autre explication. Je remarque que presque tous les pays situés au sud du 45 degré de latitude sont des pays de langue et de civilisation latine, Italie, Espagne, Portugal, Roumanie, et la France elle-même précisément dans sa moitié sud. Nous pourrions y ajouter la Grèce, quoi qu'il ne faille pas confondre les Grecs avec les Latins, mais en la considérant dans le passé sinon comme la mère, du moins comme la grand'mère des pays que je viens d'énumérer, et dans le présent aussi comme solidaire des pays assis autour de la vieille Méditerranée.

Est il besoin de faire remarquer qu'il en est de même dans le Nouveau Monde où tous les Etats au sud des Etats-Unis sont d'origine espagnole ou portugaise?

Faudrait-il donc croire à l'inaptitude de la race latine à comprendre et à pratiquer la coopération?

J'ai déjà maintes fois protesté contre cette explication fataliste, quoique affirmée par des auteurs françaises tels que le comte de

Gobineau et M. Vacher de Lapouge. Non! Qu'ils soient brachycéphales ou dolichocéphales, bruns ou blonds, les hommes de la race latine ont montré, non seulement dans leur antique passé mais dans le présent, qu'ils ne manquent pas des dons nécessaires pour n'importe quel mode d'activité. On dit les Latins individualistes; mais si ce mot est pris au sens péjoratif, c'est-à-dire antisocial, comme tendance à agir isolément, cette imputation ne paraît pas fondée.

Le fascisme lui-même, par sa définition et son symbole quelque peu brutal, le faisceau n'évoque-t-il pas l'idée d'association et de discipline?

Pas davantage n'admettrons-nous que ces pays soient disqualifiés pour la coopération, par le fait qu'ils sont tous de religion catholique (catholique latine ou catholique grecque). Il y a un demi-siècle a paru une brochure d'un économiste belge, le professeur Emile de Laveleye, qui avait, pour titre "De l'infériorité des nations catholiques." Il est vrai que de son temps, cette infériorité était manifeste dans tous les domaines—instruction, industrie, transports, commerce et même évolution politique. Mais depuis lors, les choses ont un peu changé. Certains pays catholiques ont fait de grands progrès, l'Italie avec ses ambitions impérialistes, la Belgique héroïque dans la guerre, la Pologne reconstituée, et même les pays de l'Amérique latine qui certainement vont prendre une place considérable au cours du siècle présent.

On ne saurait dire que l'Eglise romaine soit réfractaire à l'association puisqu'elle est elle-même le plus grandiose exemple d'une association internationale que le monde ait jamais vu, et qu'elle a donné naissance à ces prodigieuses associations qui sont les Ordres religieux. Pour ne citer précisément que les pays latins, une religion qui a donné en Italie un François d'Assise et l'Ordre des Franciscains, en Espagne Ignace de Loyola et l'Ordre des Jésuites, est apte assurément à enfanter de grandes organisations coopératives.

Peut-être, plutôt que le facteur religieux, faudrait-il incriminer le facteur politique? Les pays que nous avons cités sont des pays qu'on peut, sans leur faire injure, qualifier de pays agités. Est-il besoin de montrer à l'heure présente la dictature en Italie, en Espagne, en Portugal? les révolutions qui, non pas seulement chaque année mais presque chaque saison, renversent le gouverne-

ment? à l'autre extrémité de l'Europe, la Grèce qui semble vouloir rivaliser avec le Portugal? et même la Roumanie avec son prince héritier renonçant à la couronne pour la revendiquer à nouveau, peut bien être classée aussi parmi les pays agités.

Et quant aux Républiques de l'Amérique Latine, Mexique Brésil etc., inutile de rappeler leurs guerres civiles. Il n'y en a qu'une où le gouvernement paraisse stabilisé c'est la République Argentine; aussi bien est-ce le seul ou la coopération donne quelques promesses.

Cette explication a certainement quelque valeur, car, en effet, la coopération ne se plaît pas dans les milieux agités. Je l'ai comparée souvent à ces beaux cristaux qui ne se forment et ne grossissent que dans des liquides au repos. Si vous secouez le vase ou le heurtez, tout est à recommencer.

Peut-être direz-vous que tout de même la coopération s'est bien développée au milieu de la révolution bolchévique et aussi durant le cataclysme qu'a été la Grande Guerre. Oui, mais ceci est autre chose: la coopération peut trouver dans une grande catastrophe, comme la guerre ou la révolution sociale, une occasion de se déployer et de gagner des adhérents parce qu'elle apparaît alors comme un lieu de refuge, comme l'arche durant le déluge. Ce dont elle ne s'accommode pas c'est de l'état de crise chronique. Elle n'aime pas les populations qui font du bruit, ce qui est le cas des méridionaux. Dans la ville de Nîmes, qui est presque ma ville natale et d'où est parti le réveil du mouvement coopératif, qu'on appelle l'Ecole de Nîmes, néanmoins la coopération n'a pu prendre racine. C'est parce que dans cette ville, qui est encore presque romaine, avec ses arènes, ses temples en ruines, et la statue de l'empereur Antonin, ses habitants, comme leurs ancêtres qui passaient leur temps au Forum, trouvent leur joie dans les cafés, les réunions publiques, et tous autres laboratoires d'activité politique, et aussi aux arènes pour les combat de taureaux. Pour ceux habitués au piment de ces émotions et de ces querelles politiques locales, l'activité coopérative apparaît terne, insipide; on dédaigne ses modestes élections, on se désintéresse de ses paisibles travaux.

III

Néanmoins je ne prétends pas que ce dernier caractère soit suffisant pour expliquer l'infériorité des pays méridionaux. Mais

à y regarder de plus près, ne faut-il pas voir un simple retard dans l'évolution coopérative des pays dont je viens de parler plutôt qu'une infériorité organique? Ce qui nous porte à le croire c'est que cette infériorité n'est pas la même pour tous les modes de Coopération. C'est dans la coopération de consommation qu'il est surtout marqué; mais dans le domaine de la coopération de production, de crédit, de travail, ces pays se montrent égaux ou parfois supérieurs à ceux de l'Europe septentrionale. Ainsi l'Italie a beaucoup d'associations de travailleurs agricoles, de caisses rurales et banques populaires; l'Espagne a ses associations coopératives de pêcheurs, des colonies de culture que nous n'avons pas chez nous, des institutions originales semi-coopératives semi d'assistance, qu'elle appelle positos, et un essai curieux de cité-jardin, "la cité-linéaire." La Roumanie elle-même peut nous instruire par la collaboration qui y est établie entre les coopératives et l'Etat.

Pourquoi ont-elles réussi dans ces diverses formes de coopération, et non dans celle de consommation? Parce que celle-ci est la plus difficile; les autres formes de la coopération sont l'école primaire de la coopération; celle-ci est la forme supérieure et dans l'évolution des formes coopératives elle est généralement la dernière à paraître. Partout, hormis en Angleterre, la coopération de consommation a été précédée par la coopération agricole ou celle de production et de credit, de même que la paléontologie nous montre la succession des formes des êtres vivants, plus ou moins évolués.

Cette supériorité de la coopération de consommation ne se manifeste guère à première vue. Les sociétés de consommation se composent de personnes de toutes conditions, n'ayant d'autre caractère commun que celui d' acheteurs qui ont l'idée de s'associer pour acheter en commun, et par conséquent en gros, ce qui est nécessaire à leurs besoins; ou qui, faisant un pas de plus, ouvrent un magasin de vente qui leur appartiendra, se faisant ainsi leurs propres marchands. C'est là une idée qui n'a rien de génial; et dans sa réalisation non plus, la coopération de consommation ne paye pas de mine; de toutes les formes coopératives, c'est celle qui a le moins d'apparence, le moins de prestige. Ce n'est qu'une boutique, et la plus humble des boutiques, épicerie, boulangerie, quincaillerie; les plus ambitieuses se haussent à la dignité de bazar.

Néanmoins, cette humble boutique a la prétention de représenter une Economie Nouvelle, différant du régime économique actuel en ceci que la direction du monde économique y passe des mains des producteurs au mains des consommateurs, et par ce changement d'orientation, disons même ce changement de pôle, le moteur se trouve aussi changé; ce n'est plus la recherche du profit mais la satisfaction des besoins. Si la coopération de consommation commence par l'épicerie, elle compte bien arriver à la grande industrie; et alors tous ces rois de l'acier, du pétrole, du coton, du blé, du cuivre, du bœuf, seront ramenés à leur véritable rôle économique qui est d'être les serviteurs du public, d'être, comme on dit, "à ses ordres."

Naturellement la réalisation d'un tel programme, disons d'une telle révolution pacifique, ne peut être envisagée que comme le terme dernier et lointain d'une évolution dans laquelle les diverses nations marchent à pas très inégaux. Et même en réservant la partie révolutionnaire, beaucoup diront chimérique, d'un tel programme et à s'en tenir aux réalisations immédiates, déjà la coopération de consommation ne laisse pas que d'être une entreprise difficile. Combien nombreuses celles qui ont avorté, plus nombreuses que celles existantes!

Voici en effet quels sont les nombreux obstacles que la coopération de consommation trouve sur sa route!

1°. Par définition même la coopération de consommation est une association de non professionnels, de personnes incompétentes. Le consommateur est un personnage passif qui ne sait rien. Il n'est pas facile, avec un ouvrier, un employé, un professeur, de faire un marchand, ne fût-ce qu'un épicier et moins encore un fabricant. Cette difficulté n'existe pas pour les autres formes de la coopération. L'association de production, industrielle, agricole, est faite entre gens compétents.

On ne peut suppléer à cette incompétence que par une certaine culture générale. Il faut des gens qui sachent non seulement lire, écrire et compter; mais qui aient quelques notions de comptabilité, des règles du commerce, qui sachent ce que c'est qu'un chèque ou une lettre de change. Ne suffit-il pas, dira-t-on, que les administrateurs le sachent? Mais même pour les simples sociétaires, si ceux-ci ne peuvent suivre la marche de la société, écouter les rapports, les critiquer dans les assemblées, lire les journaux et les almanachs, la société ne vivra que misérablement.

Il faut donc pour que la coopération de consommation prenne naissance, un milieu intellectuel un peu développé.

2°. La coopération de consommation ne peut naître ou du moins progresser que par groupements étendus. Les autres formes coopératives se forment par petits groupes; le nombre des membres est limité et doit toujours rester limité; telles les coopératives de production et les caisses rurales. Pour la société de consommation, au contraire, le nombre minimum des membres est toujours au moins de quelques centaines et peut aller à 100.000 ou même 170.000, comme celle de Londres. Elles ne peuvent se développer que si elles réalisent la coopération au second degré, en constituant des Fédérations d'achat qui groupent des millions de membres près de 1 million de familles, comme la Wholesale anglaise. Or, il n'est pas aisé de trouver des administrateurs pour ces grandes masses!

3°. La coopération de consommation froisse beaucoup plus d'intérêts, et par là même suscite beaucoup plus d'ennemis, que les autres formes coopératives. Les associations coopératives agricoles n'ont d'ennemis que les marchands d'engrais; les coopératives de crédit, que les usuriers; les coopératives de production n'ont pour adversaires que les catégories d'industriels similaires à qui elles font concurrence; mais c'est peu de chose. Au contraire, les coopératives de consommation soulèvent toute l'armée des marchands et intermédiaires! Et le nombre de leurs adversaires grandit au fur et à mesure que leur programme s'élargit. Si elles font une campagne antialcoolique, elles trouvent l'hostilité des débitants (500.000 en France). Si elles annoncent le règne du juste prix, elles encourent les réprimandes des économistes qui leur opposent la loi de l'offre et de la demande. Si elles veulent enseigner la coopération internationale et le libre-échange, elles soulèvent les colères des protectionnistes. Si elles visent à la suppression des intermédiaires, elles rencontrent l'hostilité du clergé catholique qui est généralement le défenseur des classes moyennes. Et enfin, si elles font du socialisme, elles voient se dresser contre elles non pas seulement tous les conservateurs qu'elles effrayent mais même les socialistes rouges, parce que ceux-ci voient en elles des concurrents dangereux.

Notez encore que dans la plupart des pays les pouvoirs publics se montrent tout d'abord peu bienveillants aux sociétés de consommation et ne s'y rallient que lentement. En France, ce

n'est que depuis la guerre qu'elles trouvent auprès de l'Etat et des municipalités un accueil favorable.

Enfin et surtout, l'intérêt du consommateur est moins apparent et moins vivement ressenti que celui du producteur. Ce dernier est toujours en éveil, l'autre est somnolent et il faut une violente secousse pour le réveiller. Même le bon marché ne suffit pas pour le déterminer à changer ses habitudes, et sa paresse le rend insensible aux grandioses perspectives que je viens d'entr'ouvrir. Aussi est-il beaucoup plus facile de créer une trade union qu'une coopération de consommation. Il faut bien des années de propagande et d'education pour donner aux consommateurs la conscience de leur droit.

Les nations du Nord elles-mêmes n'ont pas toutes marché du même pas dans la voie de la coopération de consommation et les Etats-Unis eux-même sont encore fort en retard. Il n'y a donc pas lieu de désespérer de l'avenir des nations latines; leur jour viendra. Et peut-être même se trouveront elles alors avantagées par le fait que le capitalisme s'y trouve moins puissamment organisé et la lutte pour le profit moins ardente.

THE FARMERS' INDEMNITY

Alvin S. Johnson

I

From the political discussions of the last seven years one might infer that the German indemnity was the only burden of its kind in the world. But if we overlook origins—the least significant basis of distinction—and consider instead existing character and consequences, we have right here at home an indemnity quite comparable to the German. I refer to the burden of mortgage indebtedness resting on the American farmer.

The aggregate volume of farm mortgages easily exceeds ten billion dollars. The interest rates vary widely, but taking interest with commissions, charges for searching titles, etc., we err on the side of moderation in placing the annual burden at $700,000,000. The capital of the German indemnity has never been fixed, in any practical sense of the term, for no well informed person ever took seriously the thirty odd billions of the London Agreement. But any Allied financier would jump at the chance to settle the indemnity claim for ten billions in valid bonds on which interest would actually be paid. When the Dawes plan comes into full operation—if ever it does—Germany will pay $625,000,000 a year, the better part of a hundred million less than the American farmer is paying today.

The absolute weight of the two burdens is thus very nearly the same, with the balance inclining against the American farmer. But burdens have meaning only in relation to carrying power. Perhaps the American farmer is a giant, to whom ten billions are nothing, and the German nation a pigmy, crushed flat under ten billions weight. We need to consider this point with some care, because carrying power is a conception which often presents baffling complexities. But in this case it involves little more than relative population, capital wealth and income.

The American farm population slightly exceeds thirty millions. The population of Germany is nearly twice as great—over sixty millions. The value of American farm property is about sixty billions. Exactly what the capital wealth of Germany is at the present moment no one can say. It was nearly a hundred billion dollars before the war. The loss of shipping and foreign investments, together with property losses in ceded territories, the deterioration of lands, industrial plants, railways, etc., could not have impaired the physical property of the nation by so much as one-half. But we will say that the impairment amounted to fifty per cent. World values stand about fifty per cent above the pre-war level. The capital value of German property ought therefore to be at least seventy-five billions.

This figure may be challenged as too high. An actual inventory of German property, taken at its current value, would probably fall well short of seventy-five billions. Capital values, as everyone knows, fluctuate widely with the mood of the investing public. A piece of property which yields a net income of a thousand dollars may be valued at ten thousand dollars, when the prevailing mood is sober and pessimistic. It may be valued at twenty thousand dollars when the prevailing mood is buoyant and over sanguine. The Germans have been sunk in depression and discouragement ever since the war, and place a low capital value on their property. The American farmer puts his capital values high. In the end, however, what counts in the measurement of capital is the capacity to yield income. From this point of view the German capital certainly exceeds that of the American farmer, and probably at least in the ratio of 75 to 60.

Before the war the German national income was about ten billions of dollars. What it is now nobody can say with certainty. And even if we could make a precise compilation of money incomes actually received it would mean little, since the price structure in Germany has not recovered entirely from the distortion brought about by monetary inflation. There is good reason for believing, however, that the German consumer commands, on the average, at least two-thirds of the goods he enjoyed before the war, or the value, in pre-war money terms, of six and two-thirds billions. In terms of world prices of today, the value would again be nearly ten billions.

The aggregate income of the American farmers is estimated by

the National Bureau of Economic Research at $9,589,000,000 for 1919 and at $3,965,000,000 for 1921. The former figure represents the highest point in the history of American agriculture, the latter a low point, although by no means the lowest. To be on the safe side, however, we will put the income of the American farmer at nine billions for the best years and six for the worst. The average will not exceed seven billion and a half. If the constituent elements in income are valued on the same basis of world prices, the German income pretty certainly exceeds that of the American farmer.

The German national income has to feed twice as many mouths. But the American farmer's standard of living is higher. The average cost of maintaining an American farm family is probably nearly a hundred per cent higher than the cost of maintaining a German family. If the American farmer could lower his standard to the German level he would perhaps have a greater surplus for debt payment. But his standard is already painfully low as compared with that of the town worker, and any further lowering would lead to a great exodus of the younger farm workers to the cities.

On the face of these calculations it appears that the burden of debt resting on the American farmer is at least as heavy as the burden of indemnity resting on the German people. But are we not overlooking an essential point of difference? Some part of this mortgage indebtedness is simply a matter between farmers. One farmer sells a part of his land to another and takes a mortgage. One farmer pays interest and another receives it. The beneficiaries of the German indemnity are all non-Germans.

But interest on mortgages by no means exhausts the indemnity burden on the American farmers. Much land is owned by men who live in cities and towns, who receive rents as absentees. Especially in the South the farm population is heavily burdened by exorbitant interest rates on crop liens. The farmer everywhere secures a large part of his supplies and equipment on credit, and pays concealed interest at high rates. In considering the balance of payments between town and country these items have to be taken into account. In their aggregate they must greatly outweigh the fraction of the mortgage interest that is paid directly to farmers.

II

The economic mechanism of indemnity payment has been so fully described in recent years that the tribe, once numerous, who imagine that the Germans have only to send out cash or checks is virtually extinct. Everyone knows now that an indemnity must be paid in goods. Year by year—when the Dawes plan is in full operation—the German people will have to send across the national borders iron wares, textiles, chemicals, coal, potash and a thousand and one varieties of other goods, to the value of $625,000,000, and will receive in return nothing but receipts applicable to the indemnity account. Year by year the American farmer sends to the cities wheat and meat, milk and eggs and vegetables, cotton and tobacco, wool and sugar, to the value of more than $700,000,000, and he receives in return nothing but interest receipts.

In order to keep up this commerce of goods against receipts the Germans have to lower their standard of living; extend their hours of labor; do without extensions of plant from which only remote, if rich, returns are to be had; avoid "unproductive" expenditures, such as new churches, schools, museums, scientific laboratories. In order to keep up his interest payments the American farmer likewise has to consume less, work longer hours; avoid improvements such as orchards and forest tree plantations that cannot yield prompt returns; cut his contributions to the rural church; vote against good roads and other public improvements.

The natural effect of the German indemnity is to stimulate overproduction of export commodities. Markets that would otherwise have been sufficiently supplied at remunerative prices now receive a plethora, to force prices to a lower level. At lower prices the Germans have to send out more goods. They are forced to whirl round faster and faster in a vicious circle of production and prices. The case of the farmer is similar. To make his interest payments he is forced to put every available acre into cash crops. If his wheat land is not altogether worn out he puts it into wheat, although under the canons of good tillage it ought to rest for a year or two under clover. If all his land is fit for cotton, he plants it to cotton, though a part of it, set aside for grass and fodder, would supply his household with

milk and lift the curse of anaemia and rickets from the rising generation. Overproduction of cash crops is a necessity, in a debt ridden farm population, and overproduction means low prices. Low prices, given fixed debt charges, evoke greater efforts to produce. The farmer thus joins hands with the German around the vicious circle.

It may be permitted to draw one final analogy. The Germans, compelled to produce as much and consume as little as possible, make a poor market for Allied producers. The British textile workers and the French vineyards have grievances of their own against the indemnity. Is it to be supposed that our debt ridden farmers are a good market for our industrial products? Ask the local merchants, the disconsolate salesmen, the manufacturers who find trade becoming more and more a hand to mouth affair. The farmers don't buy as they should, because they can't.

III

A concrete example may serve to set us on our way toward the next phase of our inquiry, the search for causes. I take for my example a prairie state farm with whose history I am familiar but which is in no other respect a departure from type. This farm was won from the public domain in the middle sixties. The original owner sold it in 1895. The farm was sold again in 1910, and was purchased by the present owner in 1919. Like all other farms in the county it is now for sale, and will probably remain in this state for five or ten years.

Even a cursory survey of the farm will show that its golden age lies well in the past. The house, unusually spacious for a prairie state farm, is sadly dilapidated. The rain goes through the roof of the east wing, but the farm family doesn't use the east wing. The shingles are badly curled on the rest of the roof, prepared to catch a spark some windy night. The barn roof sags in the middle and one corner has settled badly; the carriage shed is a morass in wet weather. The skeleton of a windmill still stands, but the pump is worked by the farmer's big boy, who means to get a job in Kansas City before many droughty summers have gone. There is a tract of wet land on the place, once drained and miraculously productive. It reverted to swamp through the choking of the drainage pipes. Since the days of the original owner the orchard has been grubbed out to make five

more acres of corn ground, and the fields have mounted the stiff slopes that were formerly reserved for pasture. Thus the tilled area has been doubled since the time of the original settler.

At first glance one would infer that this was merely an instance of the worn-out farm. But on closer inspection the inference proves misleading. The fields on the level show splendid yields of wheat and corn, and even the slopes are productive, in spite of yellow streaks betokening erosion, which becomes more serious year by year. Since the nineties agricultural practice has made notable progress. On soils of equal fertility the Marquis wheat of to-day yields two bushels more per acre than the Minnesota Fife of the nineties. The present strains of yellow dent corn are more prolific, perhaps by three or four bushels, than the hard kernelled varieties of thirty years ago. The introduction of alfalfa has simplified the problems of pasturage and hay: the use of the silo has added greatly to the value of the roughage from the cornfields. The breeds of cattle and swine have been much improved; hog cholera has been stamped out and the risks from bovine tuberculosis are steadily diminishing. These gains in farm practice certainly outweigh any loss through the exhaustion of the elements of fertility in the soil. And if more care and labor are required to reap the benefits of improved practise, the progress in the efficiency and ease of operation of agricultural machinery is more than a sufficient offset.

As a fact, except for a small part of the acreage that has been spoiled by water logging and erosion, every acre yields a larger physical product than it did in the nineties. Moreover, every day's labor on it accomplishes more, measured in physical product, than in the nineties.

It is not, however, physical product as such that makes for prosperity, but value product, or physical product in terms of price. And the whole farming population is clamoring that the prices of agricultural products are too low. This may be true. It is not an easy matter to determine at just what level agricultural prices are fair and just. But for the sake of the argument we will admit that they are now unfairly and unjustly low. So they were in the eighties and nineties too. The farmer of that period did not buy so many things as the farmer of today. He raised his horses and hay for them, where the farmer of today buys cars and tractors, and the gasoline and oil they require. In the

eighties and nineties most farmers killed their own meat, while today a great part of the farming population supplies itself from the butcher's. The urbanization of the country through the automobile has forced the farmer to buy more clothes. In view of such considerations it is difficult to draw a valid comparison between the purchasing power commanded by the farmer of a generation ago with the purchasing power commanded by the farmers of today. Yet anyone who will analyze the terms on which farm produce was actually exchanged for industrial products thirty-five years ago will be pretty sure to conclude that the cards were stacked against the farmer as ruthlessly then as they are today.

The farm we are studying takes in three dollars today for one dollar in the nineties. Industrial prices have by no means advanced three hundred per cent. Yet the farm was prosperous in the nineties. It is plain to see that the farm is not prosperous today.

Let us glance at its financial status. The original owner obtained the land from the government under the preëmption act and paid $1.25 an acre, out of his pocket. So long as he held the land, for every dollar's worth of produce sold off the farm a dollar's worth of industrial products came back. Hence the spacious house and well built barn, the windmill, fences, bridges, tiles for drainage, orchard trees, evergreens for the windbreak; hence the surplus for bringing up a lusty family of boys and girls, ultimately for the service of the railways and the public schools. The present occupant, like many of his neighbors, is childless, and the little white school house has been torn down.

The farm was sold to the second owner at fifty dollars an acre, four-fifths represented by a mortgage. Thereafter its chief business, through many years, was to sweat out interest and payments on the principal. It had barely cleared off the mortgage when it was sold again, in 1910, for one hundred dollars an acre, again three-fourths mortgage. For some years the farm could barely hold its own against the interest. Then came war prices, and the principal shrank rapidly. But in the time of the great land boom in 1919 the farm was sold for $200 an acre, of which $160 still stands as mortgage. When prices are good the farmer manages to pay the interest; when they are bad he does not.

His creditor, the local banker, refrains from foreclosing. He is an admirer of Charlie Dawes and the famous Plan, and generously contents himself with all there is to get.

IV

The simplest and most popular proposal for the relief of the overburdened farmer is the raising of prices of farm products, either through cooperative activities or through political action. Dump abroad any surplus above domestic consumption at a fair price. Let us assume away the practical obstacles to such a project. They are serious, but it is by no means certain that they could not be surmounted if the nation became convinced that they offered permanent relief. How would the raising of prices affect the situation?

No one would deny that a substantial advance in the price of farm products would strengthen the position of those who now own mortgaged farms. A twenty-five per cent advance in prices would increase the farmer's income at least a billion and a half in the average year. If it were applied chiefly to debt payments it should extinguish the farmers' indemnity in seven or eight years.

But a twenty-five per cent advance in prices, if it promised stability, would be followed straightway by a rise in land values. Farms would change hands rapidly, as they did in the boom period at the close of the war, and every change would involve an addition to the volume of farm debt. It is not in the least improbable that at the end of ten years the farmers' indemnity would stand at twenty billions, instead of ten. Thus, while the capacity of the farms to pay would have increased, the burden of obligations would have increased considerably.

At present the prices of farm products are too low to yield a fair return on the farmer's labor together with normal interest on the capital represented by the value of his land. If much of that capital is borrowed under mortgage, the difficulty of meeting interest charges is almost insuperable. Two dollar wheat and one dollar corn, with prices of meat and dairy products correspondingly advanced would ease off the present situation. But if land values rose and the volume of debt increased, we should soon hear a clamorous demand for three dollar wheat and dollar and a half corn. Any plan of price control that accepts capital values as a

determining factor in cost must have just this result of progressive inflation.

But why should we assume that an advance in prices would automatically produce a rise in land values? Why might not the farmers take the higher prices and enjoy their benefits while leaving land values undisturbed? Because a semispeculative attitude toward land ownership is deeply ingrained in the farmer's mind, especially in the corn and wheat belts, where discontent is now most rife. That land will rise has long been an article of faith with him. It has been so ever since the first settlement. What lured the pioneers was not merely cheap land, but cheap land that would become dear in time. The actual product of pioneer farming was never an adequate reward for the pioneer's labor and hardships. He relied on the unearned increment to supplement his current rewards. When he sold his farm, the price he received was not as a rule too high, if he merited fair compensation. But it was too high from the buyer's point of view, unless he could count on a further rise. And so of the price paid by the next buyer, and the next, down to present time.

Our western agriculture has in effect been subsidized by unearned increment. Without this subsidy agricultural development would have proceeded at a much slower pace. We should not have flooded the industrial cities and Europe with cheap food. Perhaps a slower development would have been sounder. But we cannot go back and revise the facts of history.

When we find that land in Iowa, Nebraska, Minnesota, Kansas and the Dakotas is held at a price that represents a capitalization of its earnings at three per cent or less, we may be sure that the belief that land will go on rising is still vivid in the community mind. An artificial raising of prices of farm products would result in the validation of this belief. Land would rise and in the consequent boom immense areas would change hands. The volume of mortgages would increase, and the willing fields would have to reconcile themselves to steadily increasing indemnity charges.

V

Some readers will instantly conclude that the one and all sufficient remedy for this deep seated malady is the Single Tax.

It may be admitted without argument that the Single Tax would put an end to speculative farm holding. It would make every farmer look to current production alone for the reward for his labor. I shall not raise the question of the hardship involved in wiping out some forty billion dollars' worth of property that the farmers own or think they own. In the long run a more serious evil would appear. The Single Tax would strip from the farms every bit of the surplus above the wages of the farmer and interest on his working capital. It would make of the State the universal absentee landlord. The position of the farmer would be assimilated to that of the tenant farmer of the present, under whose hand the land seldom thrives.

The Single Tax philosophy originated with a city man, Henry George, and derived its theoretical impetus from the works of another city man, David Ricardo. Its fundamental assumption is that agriculture is based on the "original and indestructible properties of the soil." But no close student of agriculture can accept such an assumption. Rather he must assume that a sound agriculture is based on the technical skill and energy of the farmer, his insight, spirit and love of the countryside, the jollity of the country picnic and dance, the fresh cheeked maidens who eagerly accept the rôle of sweethearts of country boys and develop into contented farmers' wives. The original and indestructible properties of the soil are all very well in their way, but they are dead matter which counts only if organized into the living rural community. And that the community may live and prosper, much of the surplus produced by the fields must remain in the community, in the form of new and better buildings, better equipment for farm and house, better churches, schools, social halls.

VI

Inflated land values are after all only one factor in a complex problem. To operate destructively they must be combined with other factors that produce a rapid turnover of holdings, with a resultant excessive burden of debt. Much, if not most, of the farm land of France is held at preposterously high prices. Ask the proprietor of one of those splendid wheat fields on the Loire at what price he holds it. You will be staggered. The most inflated American farm price won't match it. But here is the

difference: The Frenchman wouldn't sell, even at his inflated price; the American would shade his price considerably in order to sell. The Frenchman's price is only a private fancy which has nothing to do with the state of agriculture. The American's inflated price is an active force in building up the burden of debt borne by the farms. If one traced out the history of the French wheat farm one would probably find that from the time of the French revolution to the present day it has never paid a sou of interest on mortgage debts or of rent to absentee owners. Its proprietors have lived on it in contentment, and at death have left it, with regret, to contented sons or daughters. For every franc's worth of produce sent to town the farm has been able to bring back a franc's worth of goods: brick, tile and lumber for the extension of the buildings, commercial fertilizer, such implements and machinery as the state of technique might require, and of course not a few mere gauds, ribbons and tinsel for the wife, pipes and shotguns and government bonds for the husband. There is a just balance of trade between farm and city, in France, and therefore, though the French are not the best farmers in the world, the whole countryside smiles with prosperous contentment. Our American balance is all out of kilter; therefore a countryside which by nature should be entrancing is too often utterly disconsolate.

The frequent turnover of farms loads the country up with debts and robs it of the surplus on which a rich and agreeable rural life could be based. And the resultant dullness and thinness of life accelerates the farm turnover. Discontent is one of the most infectious of diseases. You may be as serene a spirit as ever yearned to sit still. Yet if all around you men are selling out or longing to sell out, you become infected yourself and sell out if you get a chance. The rising generation is most seriously affected by this community restlessness. In some districts they regularly fly the nest as soon as their feathers are half grown, and nothing remains to hold down the farms but men and women of middle age and downward.

The women—and this is the worst sign of all—are seriously infected with the prevailing discontent. Forty years ago almost every farmer's wife had a whole repertory of songs, the burden of which was: "Stay on the farm." Those songs have died out. The farmer's wives of today, if they were not too discouraged to

sing, would strike up in chorus: "I didn't raise my boy to be a farmer."

VII

One thing is certain: we shall never have a sound, contented, debt-free rural life until the process of farm turnover has been much slowed down. Anything that makes country life more fruitful and agreeable would help: the organization of cooperative societies; the establishment of institutions like the Danish folk schools; university extension; the building up, through a far-sighted urban philanthropy, of the rural church. One could enumerate a thousand things that would help, each in its own small way, and in the aggregate they would help considerably. But we are too impatient a people to throw ourselves enthusiastically into a program that might not show tangible results for half a century. We insist on remedies that work more promptly and efficaciously. And we can find them if we set about it.

In the recent boom period there were thousands and tens of thousands of men who could have sold their farms at a huge advance over the price they had paid, but hesitated until the opportunity passed. They are still holding down those farms and are not very happy over it. Why didn't they sell? Because the income tax, then heavy, would have taken a big slice of the profit. They thought it wise to wait until the income tax had subsided.

Now let us enact a profits tax that will take the whole, or almost the whole of the profit from the sale of land. We will let bygones be bygones, and take present values as our base. Let four-fifths of any advance upon this base go to the community. And that it may not become a new device for plundering the country for the benefit of the city, let the proceeds of the tax be applied locally to the abatement of other taxes.

Such a tax would practically abolish the unearned increment subsidy to agriculture. Every buyer of land would have to look to actual earnings, not to rising values, for the return on his capital. This means that on the buyer's side the process of farm turnover would be retarded. If the prices of farm products rose, as they must sooner or later, a large class of farm owners would find that they were in a privileged position, so long as they held their farms as owners. They would be enjoying the full benefit

of better prices. But they could not write any considerable part of these high prices into their capital, through the sale of their farms, since the community would take most of the advance in selling prices.

A man with a good farm would find it wise to hold it until the end of his working life. He would have a privilege worth transmitting to a son if the state wisely refrained from taxing such inheritances.

But would not the danger arise that these privileged landowners would eventually become absentee landlords, living in the towns or in Florida or California, and stripping the land of its surplus? There would be a danger of this unless the State had the ingenuity to levy a special tax on lands not operated by their owners, a tax heavy enough to discourage the development of this form of property right.

VIII

It may be objected that such a tax would operate to produce a certain rigidity of status in rural relations. A good farm would often remain generation after generation in the same family. Small farms would not so easily be merged into larger and more economical ones; farms that are too large would not be so easily subdivided. Suppose we admit that there is something in these objections. Yet the disadvantages are insignificant in comparison with the benefits that would flow from a better stabilized system of farm tenures.

With the reduction in the rate of farm turnover the mortgage indebtedness would be gradually paid off and the balance of exchange of products between country and city put on a sound basis. The country community would attain the means of improvement and would become a more agreeable place to live.

The greater stability of tenures would not only make the social life of the country more satisfying, but it would lay a basis for cooperation such as cannot exist where the farm population is ceaselessly shifting.

The gains from cooperation, from improvements in farm practice, in transportation, would fall to the farmer as cultivator, not as landowner.

If it appeared desirable to effect an artificial increase in agricultural prices through public action, the benefits would fall to

the working farmer, not to the landholder as such. They would not be absorbed into the value of the land, to burden the next buyer in the full measure of their benefits.

The removal of the subsidy to agriculture represented by the increase in the value of land would restrict cultivation to the lands that actually pay. The gradual lifting of the burden of debt would lighten the pressure to produce the maximum volume of cash crops. The tendency to overproduction would in so far be abated.

IX

With good roads and the automobile, with rural post, the telephone and radio, with a marvellous variety of labor saving devices for lightening the burden of the farm and the household, we have in this country at the present time the technical basis of the richest and most agreeable country life in the history of the world. But we have permitted these gifts of fortune to be turned against us. The paved highway is a road by which the best blood of the country flows swiftly to the cities. The automobile and farm machinery serve to transform the young man who might have become an able farmer into a half-baked mechanic. The telephone and radio ceaselessly din the seductions of the city into the ears of the children of the open fields. The sky and sun and the good brown earth are abandoned to moron and peon.

It is not by any law of nature, but because of a lazy habit of mind that assumes that if laissez-faire and free movement serve well to govern the traffic in peanuts and popcorn, gimcracks and gewgaws, therefore they must also serve well to govern the exchange of lands and homes, the price men pay for the right to produce a people's bread, the price they may exact of others when they in turn choose to shift to the urban side of the national economic equation.

We shall be a sound nation when we have a sound agriculture. We shall have a sound agriculture when we free it from speculation and a swift turnover of holdings, with its consequence, unbearable debts, an indemnity upon the land. We can do it without disturbing any just rights or equities. If we choose.

EIGHT-HOUR THEORY IN THE AMERICAN FEDERATION OF LABOR

Henry Raymond Mussey

No student of American labor history can fail to be struck with the extraordinary importance of the eight-hour issue in union thinking during the formative years of the American Federation of Labor. At its first convention, in 1882, the Federation of Organized Trades and Labor Unions of the United States and Canada, predecessor of the American Federation, passed a strong and interesting resolution on the subject;[1] the following year it resolved that the question of shortening the hours of labor was "paramount to all other questions at present";[2] in 1884 it recommended to its constituent organizations concerted action to obtain the eight-hour day beginning May 1, 1886;[3] and during the next twenty years no convention passed without some declaration concerning eight hours. In his report as president at the convention of 1889, Mr. Gompers declared: "In the whole history of the labor movement there has not been any question upon which the thoughts of the civilized world have been so thoroughly centered as upon the Eight-Hour Movement inaugurated by the American Federation of Labor at its last convention."[4] After referring to the discouraging conditions prevailing the year before, he went on: "It was at this time that our proclamation to the world was made, to call on the toilers of the country to the movement to enforce the Eight-Hour workday, May 1, 1890. From that moment a change took place. Hope was instilled into the hearts and minds of the workers to supplant despair. The rallying cry of eight hours was sounded. The working people again stood erect and staunch in their manhood. The tide had changed."

[1] *Proceedings*, 1882, p. 15.
[2] *Ibid.*, 1883, p. 16.
[3] *Ibid.*, 1884, p. 14.
[4] *Ibid.*, 1889, p. 14.

It is not the purpose of this paper to trace the external progress of the eight-hour movement. Disregarding the rhetorical exaggerations of a public address such as that just quoted, it is sufficient to observe that there was an interesting agitation during the sixties and the early seventies, which provided nearly all the ideas of the later movement. A long interval of quiescence followed the panic of 1873. In the middle eighties the unions again took up the question, making an unsuccessful attempt to introduce the eight-hour day in 1886. A period of vigorous agitation followed, culminating in the successful effort of the carpenters in 1890. The miners, who were chosen by the Federation as the next trade to lead the fight, failed at the last moment, to the discouragement of the other unions. Then came the great Homestead and Coeur d'Alene strikes of 1892, and attention was diverted to other issues, the eight-hour question losing its primacy. In the course of years, however, progress was made, and in 1907 President Gompers reported more than two dozen crafts working only eight hours, most of them in the building and printing trades and the mines.[1] The International Typographical Union had just expended four million dollars in establishing the eight-hour day.[2] It remained for the events of the war to complete the process just sketched, and to usher in the present era, in which eight hours may be regarded as the normal workday of organized labor.

It is the ideas underlying the movement, especially in its earlier period down to 1892, with which we are concerned. Why did the men who were to unify the American labor movement take up first the question of hours, and for ten years make the shorter workday the central demand in their positive platform? The opinion may be hazarded that it is because the theory of the eight-hour day happened to fit particularly well the practical needs of their situation, and was therefore a tool well-nigh indispensable to them in their hard task of organization. The matter is not without interest for the student of economic theory, and particularly of the productivity theory of wages, inseparably connected with the name of Professor Clark.

For more than forty years, from the establishment of the Federation of Organized Trades and Labor Unions in 1881 down

[1] *Proceedings*, 1907, p. 32.
[2] *Ibid.*, p. 33.

to the last hour of the El Paso convention of the American Federation in 1924, the animating spirit and the directing mind of the movement were those of Samuel Gompers. The intellectual history of the American Federation is for the most part the intellectual history of Samuel Gompers. A man of action rather than an original and speculative thinker, though a man by no means unacquainted with speculative writings, Mr. Gompers had a profound distrust of the thinker as such, a distrust that later ripened into a bitter contempt for the "intellectuals"—except the particular ones who served his particular ends. Yet he utilized ideas wherever they came to his hand, and the Federation for a generation practically lived on three important ideas: first, that labor must help itself; second, that the way for labor to help itself is through its economic power (a fair question may perhaps be raised whether Mr. Gompers' idea of the economic power of labor ever extended much beyond the use and the threat of the strike); and third, that the standard of living determines wages and the whole position of labor in the social order. It is this third idea that underlay the early eight-hour movement and gave it driving power. Nobody can understand the American Federation who does not understand this as well as the other two ideas.

It was his confident faith in labor as its own only possible savior, and in the organization of its economic power as the only agency for effecting that salvation, that gave to Mr. Gompers at once his distrust of all interfering "outsiders" and his fanatical zeal for the unions and for the Federation, binding those unions together. Over and over again he claims for the unions the whole credit for better labor conditions. Thus he writes in the *American Federationist* of January, 1903 (pp. 20, 21): "It may be assumed that by comparison with conditions of a century or more ago, the scale of wages has risen, the hours of labor have lessened, and the general conditions of toil have improved. This can be ascribed to no other cause than to the constant, concrete, intelligent effort of trade unionism"—though the economists flatter themselves that they have succeeded in ascribing it to several other causes also. If Mr. Gompers had appreciated in more balanced fashion the multitude of causes which to the economist seem to determine the well-being of labor, he would probably not have been so great a labor leader as he was; for

the hopeless task of organizing American industrial labor in the last quarter of the nineteenth century could scarcely have been successfully accomplished by any man who did not vastly overemphasize the importance and effectiveness of organization. If that faith did not enable Mr. Gompers to cut his way through the masses of legal red tape wound round labor organizations during the present century, it did at least enable him during the preceding years to weld the American labor movement together into a powerful working body.

In that task of organization the eight-hour issue was a tool of great value,—to no small extent, it is submitted, because its underlying theory made it an effective gospel under the circumstances then existing. That theory came down from the eight-hour advocates of the years 1865-72. Mr. Gompers once put the whole thing thus: "In the language of that foremost of economic and social thinkers, Ira Steward, 'The way out of the wage system is through higher wages, resultant only from shorter hours.'"[1] The reader should note well the little word *only*, for it represented Steward's actual thought, and it represented the dominant wage theory of the American Federation during its first ten proselyting years. In his autobiography Mr. Gompers testified to his debt to Ira Steward, George E. McNeill and George Gunton, as leaders of the earlier movement.[2] They furnished the idea, and Mr. Gompers hammered out the organization to make the idea effective.

Let us look first at the idea as enunciated by Steward. In his pamphlet on "The Eight-Hour Movement. A Reduction of Hours is an Increase of Wages," published by the Boston Labor Reform Association in 1865, he states his ultimate aim thus: "The simple increase of wages is the first step on that long road which ends at last in a more equable distribution of the fruits of toil. For Wages will continue to increase until the Capitalist and Laborer are one. But we must confine ourselves first to the simple fact that a reduction of Hours is an increase of Wages."[3] This last revolutionary proposition, which became the cornerstone of American Federation thinking, he proceeded to demonstrate in the following series of propositions:

[1] *Proceedings of the A. F. of L.*, 1890, p. 13.
[2] Gompers, *Seventy Years of Life and Labor*, Vol. I, pp, 59, 209, 290.
[3] Steward, Ira. *The Eight-Hour Movement*, p. 6.

> My theory is, first, that *more leisure* will creative *motives* and *temptations* for the common people to *ask* for more Wages.
>
> Second, that where *all* ask for more Wages, there will be no motive for refusing, since Employers will all fare alike.
>
> Third, that where all demand more Wages, the demand cannot be resisted.
>
> Fourth, that resistance would amount to the folly of a "strike" by *Employers* themselves against the strongest power in the world, viz., the *habits, customs,* and *opinions* of the *masses.*
>
> Fifth, that the change in the habits and opinions of the people through more leisure will be too gradual to disturb or jar the commerce and enterprise of capital.
>
> Sixth, that the increase of Wages will fall upon the wastes of society, in its Crimes, Idleness, Fashions, and Monopolies, as well as the more legitimate and honorable profits of Capital, in the production and distribution of Wealth, and
>
> Seventh, in the mechanical fact, that the cost of making an article depends almost entirely upon the *number manufactured,* is a practical increase of wages, by tempting the workers through their new leisure to unite in buying luxuries now confined to the Wealthy, and which are costly *because* bought only by the wealthy.[1]

The thinking of sixty years has developed, indeed, but has added little to these ideas of Steward's, so far as the basic short-hour philosophy is concerned, and persons who imagine that Henry Ford has invented something new in that line will do well to re-read some of the old eight-hour literature.

In two other passages of the same pamphlet Steward states picturesquely the underlying idea of the standard-of-living theory of wages on which the American Federation builded its house:

> The charm of the Eight Hour system is that it gives *time* and *opportunity* for the ragged, the unwashed, the ignorant and ill-mannered to become *ashamed of themselves* and their standing in *Society.*[2]
>
> Imagine Operatives or Laborers of average capacity leaving work at half-past four; they are liable to meet those whose good opinion is worth everything to them, and they *think* that a neat personal appearance is positively necessary; and it must be confessed that, while fine clothes do not make a man, we all look at them as a certain sort of index to his character.[3]

The reflective reader in the year 1927, as he recalls the conditions of 1865 and then watches the carpenter doffing his overalls at

[1] *Ibid.,* pp. 9, 10. Italics are Steward's throughout.
[2] *Ibid.,* p. 11.
[3] *Ibid.,* p. 13.

four thirty and driving off immaculately dressed in his Buick, can scarcely help wondering whether a mistake was not made in closing the canon with the book of the prophet Malachi.

One more passage from Steward's pamphlet deserves quotation:

> I submit, in conclusion, that the "Increase" of wages as a result of shorter hours does NOT mean an increase of the price of the article produced, as do strikes for higher Wages, when successful. In a reduction of Hours the Producer and Consumer will come together more frequently and stay longer, and the knowledge they will exchange will commence *melting* and *dividing between them* the profits of Capital. The Capitalist, as we *now* understand him, is to pass away with the Kings and Royalties of the past.[1]

With which satisfactory conclusion we may leave Ira Steward and return to the American Federation and the student of economic theory.

The standard of living or bootstrap theory of wages has not been popular with modern economists, though it may certainly claim a respectable father in the person of one David Ricardo. "The natural price of labor . . . varies," as every student will recall, "at different times in the same country, and very materially differs in different countries. It essentially depends on the habits and customs of the people." [2] There is no need to enter into the refinements and contradictions of Ricardian theory. Grant only what is flatly stated in that passage, and it is only one step more to the position of the bootstrappers, namely, that labor can get more by demanding and taking more. That is what underlay the early eight-hour movement; that is what made the eight-hour idea so extraordinarily valuable to the builders of the American Federation. The productivity theorist who quarrels with them for accepting this basic idea because, as the theorist says, it is not true, is simply missing the point. Whether or not the idea may be said to be true in the abstract, a plausible argument, at any rate, may be made for the standard of living theory as explaining wages in New York cigar factories in the seventies and eighties, with an endless stream of European immigrants flowing through the city, and the margin of productivity a dim and distant thing on the western horizon. And whether or not

[1] *Ibid.*, p. 23.
[2] Ricardo, *Political Economy*, Gonner's ed., p. 74.

the idea is or ever was true, the labor leaders found it extraordinarily useful in their business.

Mr. Gompers in his autobiography explains the matter thus: "The first economic theory that came under my eyes was not calculated to make me think highly of economists. My mind intuitively rejected the iron law of wages, the immutable law of supply and demand, and similar so-called 'natural laws.'" [1] And again: "My method of evolving my philosophy has been intuitive." [2] The "intuitive" method of thinking has the great advantage of allowing you to believe more or less what you need to believe, without being too strongly biased by either facts or logic, both of which commodities too often function only as excess baggage in the equipment of the practical organizer of men. On the side of facts and logic, the British economists who followed Ricardo, in trying to discover why wages went up, not unnaturally stumbled on capital as the controlling agent, and the wage-fund doctrine developed. In the United States, with its extraordinary natural resources, attention was no less naturally drawn to product as not only the source but the determinant of wages. Henry George and General Walker, at sword's point on most matters, were agreed on this doctrine. American wage theory never lost this initial bent, and Professor Clark has given it practically final form in his specific productivity theory. Now Mr. Gompers and his associates just "intuitively" rejected all this body of theory, not because it was false, but because they could not use it, and because they found in the bootstrap theory, on the other hand, an idea that gave them practically unlimited scope. Perhaps, after all, it is fortunate that they did so.

What is the form, then, into which the Ricardo-Steward doctrine was cast by Mr. Gompers and his associates? Perhaps it has never been more clearly stated than in a comparatively late article by Frank K. Foster, one of the war-horses of the early Federation movement, published in the *American Federationist* for November, 1900, under the title, "Sidelights on the Shorter Workday Demand." The following passages, with the emphasis of their author's italics, are taken from this article:

[1] *Seventy Years of Life and Labor*, Vol. II, p. 1.
[2] *Ibid.*, p. 24.

> Social progress, in its last analysis, comes from the awakened volition, or WILL POWER, of the masses. . . .
>
> In order that men shall exert themselves for an object they must first desire that object. . . .
>
> The standard of living is the measure of civilization [referring to cheap European labor]. It is not that the labor of these men is not *worth more* than they receive, but that their standard of living is such that, until the volition for better things is aroused (a slow process), they will work for the wages which will procure for them the living they have been accustomed to receive.
>
> It thus follows that it is not commonly the value of what is produced which chiefly determines the wage rate, but the nature and degree of the wants of the workers, as embodied in their customary mode of living.
>
> It is just here that we begin to see the inside forces which are at work shaping and molding the lives of the wage-earners, the thousand and one influences which differentiate the fairly-paid independent short-hour unionist and the meagrely-paid, servile, long-hour laborer.
>
> . . . . . .
>
> And this is the dynamic force of the shorter-hour movement. It brings into the daily existence of millions an element of freedom which was not before possessed by them.
>
> And with this development comes the increase in the demand for the amenities of civilization, . . . the general reaching out for those things which make life better worth living, but all of which need time for their use and enjoyment.
>
> By this increase in the wants and desires on the part of the wage-earner there ensues a gigantic commercial stimulus, a market is created for products of many kinds which under a system of long hours there is no demand for. This is the vital economic side of the shorter-hour movement, for great numbers of men and women are put to work by each addition to the customary standard of living among the masses.

The essential ideas of these passages were repeated over and over in the writings and speeches of the Federation leaders in the eighties and nineties. The worker is poor and exploited because he is ignorant and helpless, and so will put up with it. Shorten his hours, his wants will grow, and he will not put up with it. The Eight-Hour Committee of the Federation in 1891 put it thus: "The taste for freedom grows from that upon which it feeds, and would-be oppressors of labor well know that if the wage-earner is once given the time and opportunity to learn his own strength, to husband his own resources, to organize his own faculties, and to widen his own horizons, he is thereby furnished

with the weapons which shall secure for him industrial emancipation." [1] When men were working from ten to fourteen hours a day, the shorter workday was clearly enough the first condition of freedom, but what possibility of freedom would there have been for a fourteen-hour worker bound in the shackles of productivity theory at a time when the relation of shorter hours to higher output was little understood? If fourteen hours would produce only a bare living, manifestly eight would scarcely buy flowers for the funeral. But if wages depended on the standard of living, and not on product, then hours could be shortened without cutting wages, provided only the workers stood sturdily together in defense of the standard. Hours shortened, wants are bound to grow with leisure, and as the standard of living rises, so must wages; and the worker has lifted himself by his bootstraps, with the union as an indispensable agency in the process. Small wonder that Mr. Gompers referred to the matter in 1888 as "the question that strikes deeper into the evils of society than all others combined, that question which raises man out of the sloughs of poverty and despair, that question which reaches the furthest ramifications of society, that question which creates the greatest revolution in the conditions of the people with the slightest friction upon any, that question of all questions, the reduction in the hours of labor." [2]

The Federation wanted eight hours, however, not only to raise wages, but also to lessen unemployment. Here also the unionists were fortunate in being ignorant of productivity theory. In his report as president in 1887, Mr. Gompers said: "The answer to all opponents to the reduction of the hours of labor could well be given in these words: 'That so long as there is one man who seeks employment and cannot obtain it, the hours of labor are too long.' " [3] The simple idea of employing more men by spreading the existing work among a larger number through the device of shorter hours played a direct and important part in Federation thinking during the early period, down to 1892. Any cub productivity theorist can upset the idea by a mere reference to long-time effects on wages; but the unionists were blissfully ignorant of such theories, and confident of the union's power to

[1] *Proceedings,* 1891, p. 46.
[2] *Proceedings,* 1888, p. 9.
[3] *Ibid.,* 1889, p. 9.

maintain living standards and wages, so the theoretical fallacy did not trouble them.

The eight-hour theorists, however, did not fail to provide a bridge whereby their followers could pass over into the promised land of enhanced production so dear to the economist, as an examination of the three official eight-hour pamphlets published by the Federation in 1889, and still kept in circulation, will show. Lemuel Danryid's *History and Philosophy of the Eight-Hour Movement,* number three in the series, discusses at some length the supposed overproduction of the European countries and the United States, and then goes on:

> The crying evil in each country is not want of productive power, but the lack of consumptive ability.[1]
>
> The question then is how to increase consumption, and thus furnish not only increased production, but a happier and more contented people.[2]
>
> Therefore we may conclude that a science of economics would see in the lessening of the hours of labor increased consumption, a vaster display of productive activity, a higher intellectual and moral development of the toiler, a wider demand for the more artistic products of our factories, an immense stimulus afforded to inventive genius, a more thorough organization of industrial functions and an almost fabulous increase of national prosperity and wealth no longer based on individual misery and want, and all proceeding *pari passu* with higher wages.[3]
>
> The lessening of the hours of labor means less idle hands, more persons profitably employed, and, hence, augmented consumption of labor products. By increasing the number of employed an increased demand will augment supply, overproduction checked, the home market enlarged, and with every added demand for labor wages rise.[4]

Danyrid's argument ties together the doctrines of consumption and production in a way that makes Henry Ford's five-day idea look like a belated imitation. The shortening of hours, no longer just an immediate remedy for unemployment, has become a magic wand that will permanently and progressively increase production through increasing consumption and demand, will raise wages, and will usher in enduring prosperity. The economist is interested to discover here the source of the increased wages which are to follow the introduction of the shorter day.

[1] *Ibid.,* p. 4.
[2] *Ibid.,* p. 4.
[3] *Ibid.,* p. 10.
[4] *Ibid.,* p. 13.

The next stage in the growth of eight-hour theory marks a further step in the direction of reconciliation with the economists. McNeill and others in the early days touched on high wages as a stimulus to the invention of machinery, but the emphasis during the years down to 1892 was rather on the effect of shorter hours on employment, consumption, extension of the market, and wages. During the nineties, after the movement had lost its early fervor, we find the machinery argument increasingly emphasized. The productivity camel has got his nose well inside the labor tent. Testifying before the House Committee on Labor in 1900, for example, Mr. Gompers declared: "There has never been a reduction in the hours of labor of the working people but it has been followed by the introduction of a new machine, a new tool and the appliance of a new and swifter propelling force." [1] After developing this idea at length and justifying the shorter workday on the ground of increased production, the Federation leader does indeed add an argument on consumption, but manifestly consumption has lost the well-nigh exclusive importance of the earlier years of the eight-hour gospel. "It is the co-relation between the producer and the consumer, the producing power and the consuming power of the wageworker," we read; "and in the same measure that you give the larger opportunities for the consumption of goods, in the same measure do you give that greater impetus to industry." [2]

An admirable article by George A. Schilling on "Less Hours, Increased Production—Greater Progress," published in the *American Federationist* for October, 1900, completely sums up this newer eight-hour philosophy. Says Mr. Schilling:

> An increased production always follows shorter hours. This result, of course, does not follow at once; but as soon as the shorter work day is established two forces are immediately set in motion, each of which tends toward an increased production and the cheapening of the commodity.
>
> First, "Necessity *is* the mother of invention," and the great pressure felt in the industrial world by the sudden arrest of the volume of production and its increased cost as a consequence of the reduction of time stimulates a thousand minds to overcome the difficulty by labor-saving inventions and devices.
>
> Associated with this activity in the inventive world, greater man-

[1] *American Federationist,* June, 1900, p. 166.
[2] *Ibid.*

> agerial capacities are also brought into play, and the labor forces are organized and directed with greater efficiency and economy.
>
> . . . . . .
>
> The other force developed by reduced hours is the great impetus given to the intellectual and artistic life of the worker, in consequence of the added leisure.
>
> . . . . . .
>
> Every invention is essentially democratic in its character. It will do for the many, more than it will do for the few.

Schilling's article indicates that, by the time it was written, labor theory was adjusting itself to the conditions imposed on it by the more exacting requirements of advancing economic analysis. The somewhat indeterminate wage thinking characteristic of the earlier eight-hour movement was becoming progressively impossible. It is not intended to suggest any direct influence of the academic economists on the thinking of labor leaders; for such would be difficult to trace. None the less, the labor men were coming more and more to recognize a connection between wages and product, and with that growing recognition, the old eight-hour fire burned dimmer and dimmer, whatever might be the actual gains in achieving eight hours as part of a program of hard-headed labor reforms.

The turn of the century, then, may be said to mark quite certainly the ending of the eight-hour movement as a really significant element in Federation thinking. It is perhaps not mere coincidence that it marks, too, the beginning of a long period of intellectual stagnation in the Federation, a stagnation from which it was aroused only by the events of the war and the years following. Certain reasons for such a development are not hard to find. In the first place, Mr. Gompers had passed the half-century mark, and few men acquire many new ideas during their second fifty years. Then the mere working of the machinery of organization had in itself become a tremendous task, absorbing the energy and thought of the Federation leaders. The conflict with the anti-union manufacturers was growing more intense, and the unionists spent more and more time in the vain effort to prevent themselves from being entangled in legal red tape. The simplicity of the earlier contests, in which the unadorned threat of a strike largely served to bring unorganized employers to terms, gave place to the endless economic, political and legal com-

plexities of the later struggles. These influences, combined with the growing alienation of the "intellectuals" and the intellectually "progressive" younger element in the Federation itself, serve perhaps to explain, at least in part, the intellectual sterility of the years down to the beginning of the war.

As already indicated, this dark age in Federation thought brings us definitely to the end of the early eight-hour movement, marking, as it does, the collapse of any distinctive labor theory of wages, and the actual, though not nominal, acceptance of a large part of the intellectual stock in trade of the academic economists. The eight-hour day, indeed, does not disappear from view. Mr. Gompers in 1906 called for the appointment of a special eight-hour committee, saying: "There can be neither justification nor excuse in our time for longer deferring the ideal and practical universal workday of eight hours." [1] The committee on the last day of the convention dutifully brought in a report recommending that the secretary collect information and that affiliated organizations try to get shorter hours rather than increased wages [2]—a pedestrian recommendation in striking contrast with the dithyrambic periods of the earlier eight-hour reports. The convention adopted the recommendation without a word of debate. The next year the Eight-Hour Committee piously reported: "We regard the reduction of the hours of labor as paramount to all other considerations, even to an increase in wages, except in such trades and callings, where the earnings are so meagre as to make it difficult to maintain a fair standard of living." [3] What has become of the old consuming fire of a faith in shorter hours as the only means of raising wages? It seems to have been snuffed out by the breath of the productivity dragon. The committee urges on affiliated organizations persistent agitation and effort, but never at too great cost and always on the basis of a well-filled treasury. Verily the glory is departed from Israel!

This fall in the theoretical temperature does not indicate any setback in the actual eight-hour movement. Eight-hours has simply ceased to have theoretical significance, and has become one desirable end among many, to be attempted after a sober count-

[1] *Proceedings*, 1906, p. 18.
[2] *Ibid.*, pp. 251, 252.
[3] *Ibid.*, 1907, p. 286.

ing of the cost. The productivity analysis, despite Mr. Gompers' contempt for the economists, has really come to take first place in the wage thinking of the Federation leaders. The shift is plain enough in the thought of Mr. Gompers himself. In 1909 he quotes census figures to show increased per capita production, and then argues that "the wage-earner should by every logical reason reap the benefits of labor-saving machines and labor-saving systems, so he could participate in the industrial progress and the blessings of civilization with fewer hours of daily toil and more hours for leisure and opportunities for recuperation, study, and reflection to better fit the workers for the highest thought and activity of citizenship" [1]—which is sound enough economics, but is a complete reversal of the fiery old eight-hour gospel; for that gospel made it necessary only to shorten hours in order to increase wages and production, while the newer doctrine points out that it is the increase of production which has made possible at the same time increased wages and shorter hours.

This shift of emphasis in Federation thought during the present century from distribution and consumption in the direction of production, the academic economist may fairly enough regard as a triumph for sound thinking. Without doubt union thought has been obliged to take cognizance of a body of fact almost wholly neglected in earlier days; but it is questionable whether a basic change from a standard-of-living to a productivity theory of wages is likely to prove a wholly unmixed blessing to the labor movement, unless it be accompanied by other theoretical development. Possibly it was an uneasy recognition of this doubt which led the Executive Council of the Federation to ask the Denver Convention for authority to investigate wage theories in order, as stated in their report for the following year, "to develop a comprehensive, well-considered theory capable of real service in the practical problems of determining wages." [2] In making this request, the Executive Council said: "There are but two avenues leading to permanent higher standards of living for our people as a whole. One of these is the elimination of waste, either in the form of mismanagement or of undue exploitation and profiteering. The other is increased productivity. Both must be traveled

[1] *Proceedings*, 1909, p. 26.
[2] *Ibid.*, 1921, p. 69; 1922, p. 34.

simultaneously." [1] Manifestly, either the facts or the economists have shut up the Executive Council in a productivity prison, and there is no suggestion of any magic way of getting out. No more product, no more wages. In fact, the whole drift of the productivity analysis, so far as it has yet been developed, is to emphasize the difficulties that lie in the path of organizations in their attempts to increase the pay or to improve the working conditions of their members. But in order to meet the needs of the labor movement, it is not sufficient for theory to be in accord with facts. It must also be of a sort to inspire faith in the possibility of doing impossible things by combined action. Such a theory the older eight-hour advocates had, and it did yeoman service in the difficult organization days of the eighties. It remains to be seen whether contemporary labor theorists will succeed in putting the productivity analysis into such shape as to furnish a dynamic of equal power.

[1] *Proceedings,* 1921, p. 68.

THE HOLDING MOVEMENT IN AGRICULTURE

Jesse E. Pope

During the latter half of the War and the eighteen months succeeding the Armistice, American agriculture was highly prosperous. This was a period of inflation and fevered speculation. Prices of everything the farmer had to sell reached unprecedented heights, and the same is true of those things which he had to buy. Inflation cast its glamour over everything; and while the farmer was enjoying a high degree of prosperity much of it was more apparent than real and all of it rested upon foundations of sand because the farmer's operations were being carried on under conditions which could not last. Land values doubled and trebled; the standard of living greatly expanded; taxation mounted; credit was easy, and debts, instead of being paid off, were enlarged. Every element entering into the cost of production was greatly increased. The War had greatly stimulated agricultural production and in the more remote agricultural regions of the world huge stocks were piled up awaiting only means of transportation.

When the tide of high prices suddenly receded in 1920, the American farmer found himself in the possession of large stocks whose value, if turned into cash, would, in many cases, net him less than nothing with which to meet his maturing obligations at his bank. So terrible and sudden was the change in the agricultural situation that the farmers, and many who were not farmers, thought that it had been brought about by the wicked plotting of unscrupulous men and that if the farmers could only wait prices would rebound to their former height. The belief that the collapse in prices was not due to fundamental causes, and that holding was the way to meet the situation was the easier for the farmer, because he had become used to much regulation and price fixing during the War. "Stabilization," "fair prices," "orderly marketing," "gluts" and "over-speculation"—which, before the War, he had scarcely heard—were now household words. More-

over, by the passage of the licensed warehouse act during the War, the Government had increased storage facilities and had made credit based upon the warehouse receipt possible.

Therefore, wherever possible, crops were held in storage until the situation should right itself, and a holding movement resulted. While the holding movement in 1920 was rather extensive, it was highly sporadic in character, because in large part it was an individual movement rather than an organized effort on the part of the farmers.

As is well known, this attempt ended in disaster, both to those farmers who acted independently and to those who acted cooperatively. However, the advocates of holding were undismayed. They attributed the failure to lack of organization and inadequate financing. An extensive movement was inaugurated to bring the farmers into associations, the chief purpose of which should be the cooperative marketing of their products.

With the continued depression in agriculture, holding for higher prices has come to be widely accepted and is now held to be essential in any scheme for the improvement of the farmers' situation; and they are now organized for cooperative action as never before. It is conservatively estimated that at the present time more than 1,000,000 farmers are under contract to deliver their surplus products to cooperative associations which are to pool them for the purpose of holding until a propitious time for selling. While the cooperative holding movement has various aims, its chief purpose is the pooling and holding of its members' crops for higher prices.

The cooperative marketing associations undertake to secure for the individual farmer, by united action, higher prices for his product than he could get if acting alone. For the normal after harvest marketing by the individual grower they substitute a system of deferred marketing at the discretion of the association, which, acting as agent for its members, pools and holds their crops and is authorized to place them on the market when prices seem favorable.

This new form of marketing requires a vast amount of credit for the construction and maintenance of warehouses in which to store the pooled products, and for advances to the farmer to enable him to meet his after-harvest obligations and to finance himself until his product shall finally have been marketed. The Federal Gov-

ernment early attempted to foster the Holding Movement by the Act of September 3, 1915, which provided for special rediscount privileges with the Federal Reserve Banks for commodity paper. In 1923, through the passage of the Intermediate Credit Act, cheap and abundant credit was put at the disposal of the cooperatives, and by an act exempting them from the application of the anti-trust laws, their freedom of action was guaranteed. The failure of the cooperatives, even with the assistance of these acts, to accomplish their purpose has led to an insistent demand for direct Government action, and there are now before Congress many bills which practically commit the Government to the control of the production and marketing of the staple crops through the medium of the cooperative associations.[1]

The chief arguments of the advocates of credit to enable farmers to hold their crops for higher prices may be briefly stated as follows: (1) The prices obtained by farmers immediately after harvest do not reflect the true relation between supply and demand because the volume of the products thrown on the market at this time creates such a glut that orderly marketing is impossible. The farmer is therefore at the mercy of the speculator, who takes advantage of his necessity and drives prices below their normal level. (2) Even when prices do actually reflect the relation between supply and demand, they are seldom satisfactory because they do not cover the cost of production plus a fair profit. (3) The inability of the farmer to hold his crops for a sufficient time after harvest brings about lower prices, because it enables an army of useless middlemen to exact toll from both the farmer and the consumer.

The first contention, if true, would be a sufficient reason for the holding of crops for higher prices, because, other things being equal, unduly low prices at harvest time would be followed by unduly higher prices later in the year, and it would be a comparatively simple matter for the farmer to warehouse his nonperishable products and wait for these higher prices. Such a procedure would be a good thing for the farmer and a good thing for the consumer, because it would prevent the abnormally low after harvest prices and the waste which comes with over-

[1] One of the more radical of these measures—the McNary-Haugen Bill—passed both Houses of Congress but was vetoed by the President on February 25, 1927.

plenty and the later unduly high prices due to a scarcity of supplies.

The truth or falsity of the contention should not be difficult to discover.

Agricultural products fall into two groups, those which are bought and sold speculatively on the organized exchanges and those which, owing to their perishable nature or their incapacity to be standardized, are not so bought and sold.[1] I shall consider in succession several products of the first class, namely, wheat, corn, oats and cotton, seeking in each case an answer to the question—will it be more profitable for the farmer to sell his crop when it is ready for the market, or to store it and hold it for better prices?

Crops cannot be held by the farmer without expense. The elements of this carrying cost vary among crops and among farmers, and there is likely to be a difference of opinion among students of the problem as to its amount. As a rule, the farmer can market his products cheapest as soon as they are ready for the market, when, for instance, his grain can, in many cases, be delivered to the elevator from the machine, so that handling and storage charges are minimized and waste is avoided; and in the case of certain products the loss from deterioration and shrinkage during storage is thus prevented. To the elements of the carrying cost indicated, insurance and interest must be added. Owing to wide variation in some of these elements, it has been thought best, in order to give the holding farmer the benefit of the doubt, to leave them out of account. For example, no charge is made for insurance, for extra handling, or for extra cost of hauling to market due to bad roads or to the hauling having to be done at the time when the farmer is busy in the field. In the case of grain, it is assumed that the farmer stores it himself, and as he must have the bins whether he holds the crop or not, no charge is made for storage. In the case of cotton, however, conditions are different and the usual warehouse charges, amounting to fifty cents per bale for the first month and after that to twenty-five cents per month, are made. In the case of oats and wheat, shrinkage is not heavy, and this item, together with waste in handling,

[1] It may be well to call attention to the fact that the prices of many farm products, besides those bought and sold on the exchange, are influenced by speculation. Eggs, apples, lean cattle, wool, and dairy products may be mentioned as examples.

is assumed to be 6 per cent and is distributed over the first six months of holding the grain. In the case of corn, the shrinkage is very heavy and varies from month to month throughout the year,[1] and it is estimated that for the first ten months it amounts to 18.2 per cent and that for the last two months its amount is negligible. It is assumed that cotton undergoes no shrinkage in storage. In all cases the rate of interest is assumed to be 6 per cent per year and is figured on the price of the commodity at the date when it is assumed to have been ready for the market, or, in other words, at the beginning of the storage period.[2]

On the assumption that the movement of prices for ten years is an adequate basis for discussion, the grain prices have been secured by taking the ten year average of the monthly high and low selling prices on the Chicago market; and the price of cotton has been determined by taking the ten year average of the high and low selling prices for twenty-eight interior towns in the United States. No attempt is made to give the total amount of a commodity thrown on the market during a given month, but, in the case of grain, it is assumed that the relative amount can be determined by the amount put upon certain principal markets; namely, Chicago and Minneapolis in the case of wheat, and Chicago in the case of oats and corn, while for cotton the amount delivered at twenty-eight interior towns is taken.

It is apparent that in a country as large as the United States all of a given commodity is not ready for the market at the same time, and the date on which the farmer may sell his crop must be more or less arbitrarily assumed; but if the movement throughout the year be kept in view, the date chosen as a basis for comparisons cannot materially affect conclusions. The date taken for wheat and oats is August; for corn, December; and for cotton, November. The average price on these respective dates and the average amount put on the market then are taken as bases for computing the relative prices and amounts for the other months of the year. For example, the average ten year price of

[1] It is estimated that the shrinkage up to December is 6.9 per cent; January, 7.5 per cent; February, 7.8 per cent; March, 9.7 per cent; April, 12.8 per cent; May, 14.7 per cent; June, 16.2 per cent; July, 17.3 per cent; August, 17.8 per cent; September, 18.2 per cent. (Unpublished monograph on the Marketing of Farm Products, Dr. H. W. Gilbertson.)

[2] The price taken is the wholesale market price, and not the price received by the farmer. It is evident that this somewhat exaggerates the interest charge.

cotton on November first, 11.8 cents, is used as a basis—100. The average ten year price on January first is 11.6 cents and the relative price on January first is 98, *i.e.*, 11.6 divided by 11.8 and the result multiplied by 100. For the movement to market, the ten year average amount delivered on November first, 1,275,500 bales, is used as a basis—100, and the relative amount on January first (628,700 bales), is found to be 49. The price on a given date less the carrying charges to that date represents the net selling price and the difference between this net selling price and the price at the beginning of storage represents the farmer's gain or loss from holding.

The conclusions are drawn from the statistics printed in the following tables. The first table shows the relative average monthly receipts and selling price (per bushel) of wheat, and relative average monthly price, if held, during the ten year period, 1903-12.

TABLE I

WHEAT

	AVERAGE MONTHLY PRICE FOR TEN YEAR PERIOD (Cents)	RELATIVE AVERAGE MONTHLY PRICE FOR TEN YEAR PERIOD	RELATIVE AVERAGE MONTHLY PRICE IF HELD	RELATIVE AVERAGE MONTHLY RECEIPTS FOR TEN YEAR PERIOD
August	104.5	100	100	100
September	101.0	97	95	132
October	100.4	96	93	128
November	97.5	93	89+	116
December	98.4	94	88	101
January	102.8	98+	91	75
February	102.2	98	89+	65
March	100.8	96+	87+	75
April	100.9	96+	87	53
May	103.4	99	88	52
June	105.3	101	90	45
July	107.4	103	91+	79

In the preceding table it is seen that the maximum selling price of wheat is reached in July, when it is relatively three points higher than in the preceding August, or $1.074 as compared with $1.045, a difference of 2.9 cents; that is, if it had cost the farmer nothing to carry his wheat and if he had sold it at the high point, he would have gained 2.9 cents per bushel; but since carrying charges up to July first were twelve cents per bushel,

the farmer would have actually lost 9.1 cents by holding. Moreover, there were only two months out of the eleven in which wheat sold at a higher price than at the time it was ready to go on the market; and if carrying charges be taken into account, it will be seen that if the farmer had sold his wheat in either one of these months he would have lost by holding.

If, on the other hand, we take the selling price in September, $1.01, as the basis, on the supposition that the crop was not ready for the market until then, we find the maximum selling price, in July, relatively six points higher, or $1.074 as compared with $1.01, a difference of 6.4 cents; that is, if it had cost nothing for the farmer to carry the wheat and if he had sold it at the high point, he would have gained 6.4 cents per bushel; but since carrying charges up to July first were eleven cents per bushel, the farmer would have actually lost 4.6 cents by holding. Moreover, although there were six of the twelve months in which wheat sold at a higher price than in September, yet if carrying charges be taken into account it will be seen that if the farmer had sold his wheat in any one of these months he would have have sustained a loss from the holding.

A second table, similarly prepared, shows the relative average monthly receipts and selling price (per bushel) of oats, and relative average monthly price if held, during the ten year period, 1903-12.

TABLE II

OATS

	Average Monthly Price for Ten Year Period (Cents)	Relative Average Monthly Price for Ten Year Period	Relative Average Monthly Price if Held	Relative Average Monthly Receipts for Ten Year Period
August	37.6	100	100	100
September	38.4	102+	101	78
October	37.6	100	97	84
November	37.4	99	95	59
December	38.8	103	97	51
January	39.5	105	98	55
February	41.0	109	100	51
March	41.1	109+	100−	66
April	41.7	111	101	50
May	43.4	115	105	58
June	43.5	116	105−	61
July	42.9	114	102	47

It is evident from this table that the maximum selling price of oats is reached in June, when it is relatively sixteen points higher than the selling price of the preceding August, or 43.5 cents as compared with 37.6 cents, a difference of 5.9 cents; that is, if it had cost nothing for the farmer to carry the oats and if he had sold at the high point he would have gained 5.9 cents per bushel; but since carrying charges up to June first were 4.2 cents per bushel, in reality the farmer would have made only 1.7 cents by holding. An examination of the table shows that in all but two of the eleven months, oats sold at a higher price than at the time the crop was ready for the market; but if carrying charges be taken into account it will be seen that if the farmer had sold his oats in any one of five of the eleven months, he would have lost by the holding.

Table III similarly shows for corn the relative average monthly receipts and selling price (per bushel), and relative average monthly price, if held, during the ten year period, 1903-12.

TABLE III

CORN

	Average Monthly Price for Ten Year Period (Cents)	Relative Average Monthly Price for Ten Year Period	Relative Average Monthly Price if Held	Relative Average Monthly Receipts for Ten Year Period
December	52.9	100	100	100
January	51.7	98	90	105
February	53.0	100+	92	99
March	54.5	103	94	87
April	57.1	108	96	51
May	60.6	115	99	53
June	61.2	116	98+	120
July	61.7	117	97	63
August	64.2	121	100+	59
September	63.4	120	98	114
October	60.3	114	91	54
November	58.4	110	87	58

The figures demonstrate that the maximum selling price of corn is reached in August, when it is relatively twenty-one points higher than the selling price in the previous December, or 64.2 cents as compared with 52.9 cents, a difference of 11.3 cents; that is, if it had cost nothing for the farmer to carry his corn and if he had sold it at the high point, he would have gained 11.3

cents per bushel; but since the carrying charges up to August first were 11.2 cents per bushel, there was no gain from the holding. The table shows that in all but one of the eleven months corn sold at a higher price than at the time it was ready for the market; but if carrying charges be taken into account, it will be seen that if the farmer had sold his corn in any month except one he would have lost by the holding, and that in that one month he would have about broken even.

A similar table for cotton shows the relative average monthly receipts, and selling price (per pound), and relative average monthly price, if held, during the ten year period, 1904-13.

TABLE IV

COTTON

	Average Monthly Price for Ten Year Period (Cents)	Relative Average Monthly Price for Ten Year Period	Relative Average Monthly Price if Held	Relative Average Monthly Receipts for Ten Year Period
November	11.8	100	100	100
December	11.8	100	98	83
January	11.6	98	96	49
February	11.6	98	95	34
March	11.7	99	95	29
April	11.8	100	95	19
May	12.3	104	98	13+
June	12.4	105	98	8
July	12.6	107	99	6
August	12.3	104	..	13
September	11.8	100	..	47
October	11.6	98	..	91

The table indicates that the maximum selling price of cotton is reached in July, when it is relatively seven points higher than the selling price in the preceding November, or 12.6 cents as compared with 11.8 cents, a difference of eight tenths of a cent; that is, if it had cost nothing for the farmer to carry his cotton and if he had sold at the high point, he would have gained eight tenths of a cent per pound; but since carrying charges up to July first were nine tenths of a cent per pound, the farmer actually lost one tenth of a cent per pound by holding. Examination of the table shows that in only three out of the eight months did cotton sell at a higher price than at the time it was ready for the

market; and if carrying charges be taken into account, it will be seen that if the farmer had sold in any one of the eight months he would have lost by the holding.

It is to be noted that the advocates of holding base their argument not on the ten year average but on the farmers' ability to take advantage of the monthly fluctuations in price during each year. For example, Mr. Harding, formerly of the Federal Reserve Board, while disclaiming to give any advice on the matter of holding cotton, said: "I wish to call attention to the fact that cotton is a commodity which has always shown itself susceptible to marked and sudden fluctuations in value"; and he goes on to infer that, owing to this fact, it should be to the farmer's advantage to hold his cotton, in order to take advantage of such fluctuations. He assumes that under prevailing conditions cotton is thrown on the market in such qualities as to cause congestion, and adds that for the provision for Commodity Paper in the Federal Reserve Act will permit more orderly methods in marketing the crop. To quote, "I am convinced that the results of a gradual marketing of the crop this season will be far more satisfactory than would be the case were the crop forced upon the market within a short period." [1]

In order to show just what the monthly fluctuations are and what they mean to the farmer, the following tables have been prepared. These tables state for each of the four commodities the monthly selling prices for a ten year period, the cost of carrying, the net selling price (selling price less cost of carrying), and if carried after being ready for market, the monthly profit or loss to the farmer after the carrying charges have been met.

Table V shows the actual gain or loss per bushel by holding wheat and selling in any month after August during each year, 1903-04 to 1912-13, and the average monthly gain or loss during the ten year period.

It is clear from this table that if the farmer had held his wheat from August, 1903, until the following November, he would have lost seven cents per bushel, but if he had held it until either February or July, 1904, he would have made a profit of the same amount. It is also seen that during four of the ten years there was no month in which the farmer could have sold at a profit from holding, but that in each month during these years he would

[1] *Federal Reserve Board Bulletin,* 1915, p. 225.

TABLE V

GAIN OR LOSS PER BUSHEL BY HOLDING WHEAT AND SELING IN THE MONTHS SPECIFIED, 1903–1904 TO 1912–1913, AND AVERAGE GAIN OR LOSS DURING THE TEN YEAR PERIOD

	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY
1903–04:	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Selling price	83.8	86.3	82.4	81.0	82.4	87.4	98.0	93.3	91.2	94.6	96.0	100.5
Cost of holding	....	1.26	2.52	3.78	5.04	6.30	7.56	7.98	8.40	8.82	9.24	9.66
Net Selling Price	....	85.0	79.9	77.2	77.4	81.1	90.4	85.3	82.8	85.8	86.8	90.8
Profit (+) or Loss (−)	....	+1.2	−3.9	− 6.6	−6.4	−2.7	+6.6	+1.5	−1.0	+2.0	+3.0	+7.0
1904–05												
Selling price	111.0	119.0	118.5	117.5	118.5	119.5	119.5	115.4	103.3	101.6	113.7	116.0
Cost of holding	....	1.67	3.34	4.01	6.68	8.35	10.02	10.58	11.14	11.70	12.26	12.82
Net selling price	....	117.3	115.2	113.5	111.8	111.1	109.2	104.8	92.2	89.9	100.4	103.2
Profit (+) or Loss (−)	....	+6.3	+4.2	+2.5	+0.8	+0.1	−1.5	−6.2	−18.8	−21.1	−9.6	−7.8
1905–06												
Selling price	109.0	91.5	89.1	88.5	86.3	83.3	81.4	77.0	80.3	83.8	83.7	79.9
Cost of holding	....	1.64	3.28	4.92	6.56	8.20	9.84	10.39	10.94	11.49	12.04	12.59
Net selling price	....	89.9	85.8	83.6	79.7	75.1	71.6	66.6	69.4	72.3	71.7	67.3
Profit (+) or Loss (−)	....	−19.1	−23.2	−25.4	−29.3	−33.9	−37.4	−42.4	−39.6	−36.7	−37.3	−41.7
1906–07												
Selling price	75.7	78.0	72.4	72.9	73.8	84.5	84.5	82.8	83.5	95.0	101.5	103.3
Cost of holding	....	1.14	2.28	3.42	4.56	....	6.84	7.22	7.60	7.98	8.36	8.74
Net selling price	....	76.9	70.1	69.5	69.2	....	77.7	75.6	75.9	87.0	93.1	94.6
Profit (+) or Loss (−)	....	+1.2	−5.6	−6.2	−6.5	....	+2.0	−0.1	+0.2	+11.3	+17.4	+18.9
1907–08												
Selling price	99.0	108.5	115.0	....	....	....	....	106.5	106.0	....	109.5	117.0
Cost of holding	....	1.49	2.98	....	....	....	....	9.44	9.94	....	10.94	11.44
Net selling price	....	107.0	112.0	....	....	....	....	97.1	96.1	....	98.6	105.6
Profit (+) or Loss (−)	....	+8.0	+13.0	....	....	....	....	−1.9	−2.9	....	−0.4	+6.6

TABLE V—*Continued*

1908–09												
Selling price	116.0	107.0	105.0	107.0	109.3	109.3	115.8	117.4	125.1	131.8	132.5	133.3
Cost of holding	....	1.74	3.48	5.22	6.96	8.70	10.44	11.02	11.60	12.18	12.76	13.34
Net selling price	....	105.3	101.5	101.8	102.3	100.6	105.4	106.4	113.5	119.6	119.7	120.0
Profit (+) or Loss (−)	....	−10.7	−14.5	−14.2	−13.7	−15.4	−10.6	−9.6	−2.5	+3.6	+3.7	+4.0
1909–10												
Selling price	120.3	105.5	106.4	107.6	112.9	113.7	115.2	115.9	113.6	109.6	107.0	120.3
Cost of holding	....	1.80	3.60	5.40	7.20	9.00	10.80	11.40	12.00	12.60	13.20	13.80
Net selling price	....	103.7	102.8	102.2	105.7	104.7	104.4	104.5	101.6	97.0	93.8	106.5
Profit (+) or Loss (−)	...	−16.6	−17.5	−18.1	−14.6	−15.6	−15.9	−15.8	−18.7	−23.3	−26.5	−13.8
1910–11												
Selling price	121.3	114.0	108.5	105.0	107.0	107.5	102.0	98.5	98.5	102.0	98.5	101.0
Cost of holding	....	1.82	3.64	5.46	7.28	9.10	10.92	11.54	12.15	12.76	13.37	13.98
Net selling price	....	112.2	104.9	99.6	99.7	98.4	91.1	87.0	86.3	89.2	85.1	87.0
Profit (+) or Loss (−)	....	−9.1	−16.4	−21.8	−21.6	−22.9	−30.2	−34.3	−35.0	−32.1	−36.2	−34.3
1911–12												
Selling price	105.5	106.0	112.5	109.5	107.5	110.5	111.5	111.5	115.0	118.5	116.5	110.5
Cost of holding	....	1.59	3.18	4.77	6.36	7.95	9.54	10.07	10.60	11.13	11.66	12.19
Net selling price	....	104.4	109.3	104.7	101.1	102.5	102.0	101.4	104.4	107.4	104.8	98.3
Profit (+) or Loss (−)	....	−1.1	+3.8	−0.8	−4.4	−3.0	−3.5	−4.1	−1.1	+1.9	−0.7	−7.2
1912–13												
Selling price	103.0	93.8	94.0	88.5	87.9	90.8	92.3	89.9	92.8	93.3	93.8	91.8
Cost of holding	....	1.55	3.10	4.65	6.20	7.75	9.30	9.82	10.34	10.86	11.38	11.90
Net selling price	....	92.2	90.9	83.8	81.7	83.0	83.0	80.1	82.5	82.4	82.4	79.9
Profit (+) or Loss (−)	....	−10.8	−12.1	−19.2	−21.3	−20.0	−20.0	−22.9	−20.5	−20.6	−20.6	−23.1
Total average												
Selling price	104.5	101.0	100.4	97.5	98.4	102.8	102.2	100.8	100.9	103.4	105.3	107.4
Cost of holding	....	1.57	3.14	4.71	6.28	7.85	9.42	9.94	10.46	10.98	11.50	12.02
Net selling price	....	99.4	97.3	92.8	92.1	94.9	92.8	90.9	90.4	92.4	93.8	95.4
Profit (+) or Loss (−)	....	−5.1	−7.2	−11.7	−12.4	−9.6	−11.7	−13.6	−14.1	−12.1	−10.7	−9.1

TABLE VI

GAIN OR LOSS PER BUSHEL BY HOLDING OATS AND SELLING IN THE MONTHS SPECIFIED, 1903–1904 TO 1912–1913, AND AVERAGE GAIN OR LOSS DURING THE TEN YEAR PERIOD

	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY
1903–04	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Selling price	35.2	36.8	36.5	35.9	36.1	39.0	42.7	40.4	39.0	42.2	41.0	41.8
Cost of holding	....	0.53	1.06	1.59	2.12	2.65	3.18	3.36	3.54	3.72	3.90	4.08
Net selling price	....	36.3	35.4	34.3	34.0	36.3	39.5	37.0	35.5	38.5	37.1	37.7
Profit (+) or Loss (−)	....	+1.1	+0.2	−0.9	−1.2	+1.1	+4.3	+1.8	+0.3	+3.3	+1.9	+2.5
1904–05												
Selling price	35.8	31.6	29.9	30.6	30.1	30.2	30.9	31.3	30.2	30.3	31.8	30.6
Cost of holding	....	0.54	1.08	1.62	2.16	2.70	3.24	3.40	3.58	3.76	3.94	4.12
Net selling price	....	31.1	28.8	29.0	27.9	27.5	27.7	27.9	26.6	26.5	27.9	26.5
Profit (+) or Loss (−)	....	−4.7	−7.0	−6.8	−7.9	−8.3	−8.1	−7.9	−9.2	−9.3	−7.9	−9.3
1905–06												
Selling price	27.4	27.5	29.1	30.2	31.1	30.8	30.1	29.8	31.8	33.4	38.3	34.8
Cost of holding	....	0.41	0.82	1.23	1.64	2.05	2.46	2.62	2.76	2.90	3.04	3.18
Net selling price	....	27.1	28.3	29.0	29.5	28.7	27.6	27.2	29.0	30.5	35.3	31.6
Profit (+) or Loss (−)	....	−0.3	−0.9	+1.6	+2.1	+1.3	+0.2	−0.2	+1.6	+3.1	+7.9	+4.2
1906–07												
Selling price	30.6	32.1	33.5	34.1	34.4	35.4	39.1	41.3	43.5	46.5	45.4	43.6
Cost of holding	....	0.46	0.92	1.38	1.84	2.30	2.76	2.89	3.04	3.19	3.34	3.49
Net selling price	....	31.6	32.6	32.7	32.6	33.1	36.3	38.4	40.5	43.3	42.1	40.1
Profit (+) or Loss (−)	....	+1.0	+2.0	+2.1	+2.0	+2.5	+5.7	+7.8	+9.9	+12.7	+11.5	+9.5
1907–08												
Selling price	49.4	53.8	49.9	46.8	48.7	49.9	50.8	53.4	52.8	54.6	51.5	55.8
Cost of holding	....	0.74	1.48	2.22	2.96	3.70	4.44	4.71	4.96	5.21	5.46	5.71
Net selling price	....	53.1	48.4	44.6	45.7	46.2	46.4	48.7	47.8	49.4	46.0	50.1
Profit (+) or Loss (−)	....	+3.7	−1.0	−4.8	−3.7	−3.2	−3.0	−0.7	−1.6	....	−3.4	+0.7

TABLE VI—*Continued*

1908–09												
Selling price	48.3	49.1	47.9	48.7	49.4	49.8	52.6	54.0	54.6	59.4	56.4	49.0
Cost of holding	....	0.72	1.44	2.16	2.88	3.60	4.32	4.58	4.82	5.06	5.30	5.54
Net selling price	....	48.4	46.5	46.5	46.5	46.2	48.3	49.8	49.8	54.3	51.1	43.5
Profit (+) or Loss (−)	....	+0.1	−1.8	−1.8	−1.8	−2.1	....	+1.1	+1.5	+6.0	+2.8	−4.8
1909–10												
Selling price	39.8	42.9	39.8	39.1	47.5	46.5	47.6	45.1	42.5	39.9	37.6	41.6
Cost of holding	....	0.6	1.2	1.8	2.4	3.0	3.6	3.79	3.99	4.19	4.39	4.59
Net selling price	....	42.3	38.6	37.3	45.1	43.5	44.0	41.3	38.5	35.7	33.2	37.0
Profit (+) or Loss (−)	....	+2.5	−1.2	−2.5	+5.3	+3.7	+4.2	+1.5	−1.3	−4.1	−6.6	−2.8
1910–11												
Selling price	35.8	32.9	31.3	31.2	31.8	31.6	30.6	29.7	30.8	33.9	39.6	42.6
Cost of holding	....	0.54	1.08	1.62	2.16	2.70	3.24	3.40	3.58	3.76	3.94	4.12
Net selling price	....	32.4	30.2	29.6	29.6	28.9	27.4	26.3	27.2	30.1	35.7	38.5
Profit (+) or Loss (−)	....	−3.4	−5.6	−6.2	−6.2	−6.9	−8.4	−9.5	−8.6	−5.7	−0.1	+2.7
1911–12												
Selling price	40.9	44.3	46.2	46.2	46.8	49.2	52.2	53.1	56.5	54.3	52.1	49.5
Cost of holding	....	0.62	1.24	1.86	2.48	3.10	3.72	3.92	4.13	4.34	4.55	4.76
Net selling price	....	43.7	45.0	44.3	44.3	46.1	48.5	49.2	52.4	50.0	47.5	44.7
Profit (+) or Loss (−)	....	+2.8	+4.1	+3.4	+3.4	+5.2	+7.6	+8.3	+11.5	+9.1	+6.6	+3.8
1912–13												
Selling price	33.0	32.9	32.3	30.9	32.3	32.8	33.8	32.7	34.9	39.1	40.8	39.7
Cost of holding	....	0.50	1.0.	1.50	2.0	2.50	3.0	3.17	3.34	3.51	3.68	3.85
Net selling price	....	32.4	31.3	29.4	30.3	30.3	30.8	29.5	31.6	35.6	37.1	35.8
Profit (+) or Loss (−)	....	−0.6	−1.7	−3.6	−2.7	−2.7	−2.2	−3.5	−1.4	+2.6	+4.1	+2.8
Total average												
Selling price	37.6	38.4	37.6	37.4	38.8	39.5	41.0	41.1	41.7	43.4	43.5	42.9
Cost of holding	....	0.57	1.14	1.71	2.28	2.85	3.42	3.61	3.80	3.99	4.18	4.37
Net selling price	....	37.8	36.5	35.7	36.5	36.6	37.6	37.5	37.9	39.4	39.3	38.5
Profit (+) or Loss (−)	....	+0.2	−1.1	−1.9	−1.1	−1.0	....	−0.1	+0.3	+1.8	+1.7	+0.9

have sustained a loss of from nine to forty-two cents per bushel; also that during the remaining six years there were never more than two months in any one year in which he could have sold at a profit, varying from one to nineteen cents, from holding. During all the one hundred and ten months of the ten years there were only twenty-three months in which he could have sold at a profit from holding. The figures for the ten year average show no gain in any month from the holding, and show losses ranging from five to fourteen cents.

It is to be remembered, moreover, that if we assume that the farmer will take advantage of the highest price each year, we assume him, unlike the average speculator, to be omniscient.

Table VI shows the actual gain or loss per bushel by holding oats. By holding oats until either November, or December, 1903, instead of selling in the previous August, the farmer would have lost one cent per bushel, and by holding until February, 1904, he would have gained four cents. If a similar comparison with the August selling price be made for each month of each of the ten years, it will be seen that there was one year in no month of which could the farmer have sold his oats at a profit from the holding, while there were two years in which there was no month in which he could not have sold at a profit from holding, and that during the seventy-seven months of the remaining seven years there were twenty-nine months in which there would have been gains from holding ranging from one to eight cents, while in the forty-eight remaining months there would have been losses from holding ranging from one to ten cents. The figures for the ten year average show three months in which the farmer would have gained from one to two cents per bushel, and four months in which he would have lost one to two cents, while in four months he would have broken even by holding.

Table VII shows the actual gain or loss per bushel by holding corn. This table indicates that by holding his corn until either March or June, 1904, instead of selling it the preceding December, the farmer would have made a profit of seven cents per bushel, and by holding until July he would have lost two cents per bushel. A comparison of the December selling price of each year with the other selling prices of that year, shows that there were

three of the ten years in which there was no month in which the farmer could have sold at a gain from holding, and that in from two to eight months of the remaining seven years he could have sold at a profit of from one to thirteen cents by holding. During all the one hundred and ten months of the ten years, there were only thirty-seven months in which a profit could have been made from the holding, while in the remaining seventy-three months there would have been losses ranging from one to thirty-two cents per bushel. The figures for the ten year average show no month in which a profit could have been made from the holding, and ten months in which there would have been losses ranging from one to seven cents per bushel, and two months with neither profit nor loss.

Table VIII shows the actual gain or loss per pound by holding cotton. It is apparent that if the farmer had held his cotton from November, 1904, to January, 1905, he would have lost 2.8 cents per pound by holding, and he would also have lost by holding if he had sold in any month up to July first, but if he had sold then he would have gained one tenth of a cent per pound; that is, if he had sold in any one of seven out of the eight months, the farmer would have sustained losses by holding ranging from 1.2 to 2.8 cents per pound. There was one year of the ten during which there was no month in which the farmer could have sold his cotton without loss from having held it since November. During the entire eighty months of the ten years, there were twenty-four months in which he could have sold with a profit, ranging from one tenth to 2.4 cents, from holding, while had he sold in any one of the remaining fifty-six months he would have sustained a loss of from one tenth to 2.8 cents per pound by holding. The figures for the ten year average show no month in which the farmer could have sold without loss from holding.

A summary of the statistics is shown in table on page 264.

The results of a study made by the Minneapolis Chamber of Commerce of wheat prices as actually recorded on the Minneapolis exchange for the twenty-nine years from 1885-6 to 1913-14, so strikingly confirm the above conclusions that it is well worth while to summarize them here. This study shows that during the months of light movement to market, *viz.*, May, June,

TABLE VII

GAIN OR LOSS PER BUSHEL BY HOLDING CORN AND SELLING IN THE MONTHS SPECIFIED, 1903-04 TO 1912-13, AND AVERAGE GAIN OR LOSS DURING THE TEN YEAR PERIOD

	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.
1903–04	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Selling price	42.4	45.1	50.3	52.8	51.7	48.6	56.4	48.6	53.5	52.9	53.6	54.1
Cost of holding	....	3.14	3.60	3.94	4.95	6.48	7.49	8.34	9.02	9.44	9.82	10.03
Net selling price	....	42.0	46.7	48.9	46.7	42.1	48.9	40.3	44.5	43.5	43.8	44.1
Profit (+) or Loss (−)	....	−0.4	+4.3	+6.5	+4.3	−0.3	+6.5	−2.1	+2.1	+1.1	+1.4	+1.7
1904–05												
Selling price	46.3	42.6	44.1	47.0	47.8	56.3	54.3	56.4	55.0	52.9	52.3	48.5
Cost of holding	....	3.42	3.93	4.30	5.41	7.08	8.19	9.11	9.85	10.31	10.72	10.95
Net selling price	....	39.2	40.2	42.7	42.4	49.2	46.1	47.3	45.1	42.6	41.6	37.5
Profit (+) or Loss (−)	....	−7.1	−6.1	−3.6	−3.9	+2.9	−0.2	+1.0	−1.2	−3.7	−4.7	−8.8
1905–06												
Selling price	46.1	42.0	43.4	41.5	45.8	48.8	52.4	51.4	49.8	48.5	46.0	45.6
Cost of holding	....	3.41	3.92	4.29	5.39	7.05	8.16	9.08	9.82	10.28	10.69	10.92
Net selling price	....	38.6	39.5	37.2	40.4	41.7	44.2	42.3	40.0	38.2	35.3	34.7
Profit (+) or Loss (−)	....	−7.5	−6.6	−8.9	−5.7	−4.4	−1.9	−3.8	−6.1	−7.9	−10.8	−11.4
1906–07												
Selling price	43.0	41.6	43.6	44.0	47.5	52.8	53.1	53.6	57.8	62.1	61.1	59.5
Cost of holding	....	3.18	3.65	3.98	5.01	6.55	7.58	8.44	9.12	9.54	9.92	10.13
Net selling price	....	38.4	39.9	40.0	42.5	46.2	45.5	45.2	46.7	52.6	51.2	49.4
Profit (+) or Loss (−)	....	−4.6	−3.1	−3.0	−0.5	+3.2	+2.5	+2.2	+3.7	+9.6	+8.2	+6.4
1907–08												
Selling price	59.5	58.5	58.0	62.3	66.5	74.9	70.8	74.3	78.8	80.0	72.5	64.3
Cost of holding	....	4.41	5.06	5.54	6.97	9.12	10.55	11.74	12.69	13.29	13.83	14.13
Net selling price	....	51.1	52.9	56.8	59.5	65.8	60.2	62.6	66.1	66.7	58.7	50.2
Profit (+) or Loss (−)	....	−5.4	−6.6	−2.7	....	+6.3	+0.7	+3.1	+6.6	+7.2	−0.8	−9.3

TABLE VII—*Continued*

1908–09												
Selling price . . .	59.5	59.5	63.3	65.8	69.5	74.1	74.3	71.1	68.3	66.4	60.5	62.9
Cost of holding . .	....	4.41	5.06	5.54	6.97	9.12	10.55	11.74	12.69	13.29	13.83	14.13
Net selling price . .	....	55.1	58.2	60.3	62.5	65.0	63.7	59.4	55.6	53.1	46.7	48.8
Profit (+) or Loss (−)	....	−4.4	−1.3	+0.8	+3.0	+5.5	+4.2	−0.1	−3.9	−6.4	−12.8	−10.7
1909–10												
Selling price . . .	64.3	65.3	64.8	62.5	58.8	59.5	59.0	63.0	63.1	55.4	50.0	49.8
Cost of holding . .	....	4.76	5.46	5.98	7.52	9.83	11.37	12.66	13.68	14.33	14.70	15.22
Net selling price . .	....	60.5	59.3	56.5	51.3	49.7	47.6	50.3	49.4	41.1	35.1	34.6
Profit (+) or Loss (−)	....	−3.8	−5.0	−7.8	−13.0	−14.6	−16.7	−14.3	−14.9	−23.2	−21.2	−29.7
1910–11												
Selling price . . .	47.8	46.6	46.8	46.8	44.6	53.8	56.4	63.4	69.0	67.3	72.3	72.5
Cost of holding . .	....	3.54	4.07	4.45	5.60	7.32	8.47	9.42	10.19	10.67	11.08	11.32
Net selling price . .	....	43.1	42.7	42.3	44.0	46.5	47.9	54.0	53.8	56.6	61.2	61.2
Profit (+) or Loss (−)	....	−4.7	−5.1	−5.5	−3.8	−1.3	+0.1	+6.2	+6.0	+8.8	+13.4	+13.4
1911–12												
Selling price . . .	69.5	66.8	65.0	70.4	77.8	79.4	74.3	72.3	78.3	73.6	63.8	54.4
Cost of holding . .	....	5.15	5.91	6.47	8.14	10.65	12.32	13.71	14.82	15.52	16.15	16.50
Net selling price . .	....	61.6	59.1	66.9	69.7	68.7	62.0	58.6	63.5	58.1	47.6	37.9
Profit (+) or Loss (−)	....	−7.9	−10.4	−5.6	+0.2	−0.8	−7.5	−10.4	−6.0	−11.4	−21.9	−31.6
1912–13												
Selling price . . .	50.8	48.5	50.3	51.8	55.5	57.6	60.6	63.3	73.4	74.8	70.4	72.6
Cost of holding . .	....	3.76	4.31	4.71	5.93	7.75	8.97	9.98	10.79	11.29	11.75	12.0
Net selling price . .	....	44.7	46.0	46.1	49.6	48.8	51.6	53.3	62.6	63.5	58.6	60.6
Profit (+) or Loss (−)	....	−6.1	−4.8	−4.7	−1.2	−2.0	+.8	+2.5	+11.8	+12.7	+7.8	+9.8
Total average												
Selling price . . .	52.9	51.7	53.0	54.5	57.1	60.6	61.2	61.7	64.2	63.4	60.3	58.4
Cost of holding . .	....	3.91	4.44	4.90	6.17	8.07	9.34	10.39	11.23	11.76	12.23	12.49
Net selling price . .	....	47.8	48.5	49.6	50.9	52.5	51.9	51.3	53.0	51.6	48.1	45.9
Profit (+) or Loss (−)	....	−5.1	−4.4	−3.3	−2.0	−0.4	−1.0	−1.6	+0.1	−1.3	−4.8	−7.0

TABLE VIII

GAIN OR LOSS PER POUND BY HOLDING COTTON AND SELLING IN THE MONTH AS SPECIFIED, 1904–1905 TO 1913–1914, AND AVERAGE GAIN OR LOSS DURING THE TEN YEAR PERIOD

	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.
1904–05	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents	Cents
Selling price . . .	11.1	10.3	9.8	7.9	7.2	7.8	8.0	7.9	8.4	9.3	10.7	....
Cost of holding . .	....	....	....	0.15	0.25	0.35	0.45	0.55	0.65	0.75	0.85	....
Net selling price . .	....	....	....	7.8	7.0	7.5	7.6	7.4	7.8	8.6	9.9	....
Profit (+) or Loss (−)	....	....	....	−2.0	−2.8	−2.3	−2.2	−2.4	−2.0	−1.2	+0.1	....
1905–06												
Selling price . . .	10.9	10.3	11.5	12.1	11.8	11.1	11.4	11.7	11.7	11.7	10.9	....
Cost of holding . .	....	....	....	0.16	0.27	0.38	0.49	0.60	0.71	0.82	0.93	....
Net selling price . .	....	....	....	11.9	11.5	10.7	10.9	11.1	11.0	10.3	10.0	....
Profit (+) or Loss (−)	....	....	....	+0.4	....	−0.8	−0.6	−0.4	−0.5	−1.2	−1.5	....
1906–07												
Selling price . . .	9.8	10.8	10.8	10.9	10.9	11.1	11.2	11.2	12.2	13.0	13.1	....
Cost of holding . .	....	....	....	0.15	0.25	0.35	0.45	0.55	0.65	0.75	0.85	....
Net selling price . .	....	....	....	10.8	10.7	10.8	10.8	10.7	11.6	12.3	12.4	....
Profit (+) or Loss (−)	....	....	....	....	−0.1	....	....	−0.1	+0.8	+1.5	+1.6	....
1907–08												
Selling price . . .	12.7	11.4	11.2	12.0	11.7	16.6	11.0	10.2	10.9	11.8	11.1	....
Cost of holding . .	....	....	....	0.16	0.27	0.38	0.49	0.60	0.71	0.82	0.93	....
Net selling price . .	....	....	....	11.8	11.4	11.2	10.5	9.6	10.2	11.0	10.2	....
Profit (+) or Loss (−)	....	....	....	+0.6	+0.2	....	−0.7	−1.6	−2.0	−0.2	−1.0	....
1908–09												
Selling price . . .	9.5	9.2	9.4	9.2	9.6	9.8	9.7	10.4	11.3	11.6	12.6	....
Cost of holding . .	....	....	....	0.15	0.25	0.35	0.45	0.55	0.65	0.75	0.85	....
Net selling price . .	....	....	....	9.1	9.4	9.5	9.3	9.9	10.7	10.9	11.8	....
Profit (+) or Loss (−)	....	....	....	−0.3	....	+0.1	−0.1	+0.5	+1.3	+1.5	+2.4	....

TABLE VIII—*Continued*

1909–10												
Selling price	13.1	14.2	14.7	15.4	15.0	14.7	15.0	14.9	15.3	15.0	15.9	....
Cost of holding	....	....	....	0.17	0.29	0.41	0.53	0.65	0.75	0.89	1.01	....
Net selling price	....	....	....	15.2	14.7	14.3	15.5	14.3	14.5	14.4	14.9	....
Profit (+) or Loss (−)	....	....	....	+0.5	....	−0.4	+0.8	−0.4	−0.2	−0.6	+0.2	....
1910–11												
Selling price	14.6	14.3	14.8	15.0	14.9	14.5	14.5	14.9	15.8	15.4	13.7	....
Cost of holding	....	....	....	0.17	0.29	0.41	0.53	0.65	0.77	0.89	1.01	....
Net selling price	....	....	....	14.8	14.6	14.1	13.9	14.3	15.0	14.5	12.7	....
Profit (+) or Loss (−)	....	....	....	....	−0.2	....	−0.9	−0.5	+0.2	−0.3	−2.1	....
1911–12												
Selling price	11.2	9.8	9.5	9.4	9.5	10.3	10.6	11.4	11.6	11.7	12.5	....
Cost of holding	....	....	....	0.15	0.25	0.35	0.45	0.55	0.65	0.75	0.85	....
Net selling price	....	....	....	9.3	9.3	10.0	10.2	10.9	11.0	11.0	11.7	....
Profit (+) or Loss (−)	....	....	....	−0.2	−0.2	+0.5	+0.7	+1.4	+1.5	+1.5	+2.2	....
1912–13												
Selling price	11.7	11.2	12.4	13.0	13.1	12.8	12.7	12.2	12.0	12.1	12.2	....
Cost of holding	....	....	....	0.16	0.27	0.38	0.49	0.60	0.71	0.82	0.93	....
Net selling price	....	....	....	12.8	12.8	12.4	12.2	11.6	11.3	11.3	11.3	....
Profit (+) or Loss (−)	....	....	....	+0.4	+1.4	....	−0.2	−0.8	−1.1	−1.1	−1.1	....
1913–14												
Selling price	13.5	14.1	13.7	13.0	12.7	12.8	13.4	13.2	13.7	13.5	12.9	....
Cost of holding	....	....	....	0.17	0.29	0.41	0.53	0.65	0.77	0.89	1.01	....
Net selling price	....	....	....	12.8	12.4	12.4	12.9	12.6	12.9	12.6	11.9	....
Profit (+) or Loss (−)	....	....	....	−0.9	−1.3	−1.3	−0.8	−1.1	−0.8	−1.1	−1.8	....
Total average												
Selling price	....	....	11.8	11.8	11.6	11.6	11.7	11.8	12.3	12.4	12.6	....
Cost of holding	....	....	....	0.16	0.27	0.38	0.49	0.60	0.71	0.82	0.93	....
Net selling price	....	....	....	11.6	11.3	11.2	11.2	11.2	11.6	11.6	11.7	....
Profit (+) or Loss (−)	....	....	....	−0.2	−0.5	−0.6	−0.6	−0.6	−0.2	−0.2	−0.1	....

THE NUMBER OF MONTHS THE FARMER, BY HOLDING HIS CROP, COULD HAVE SOLD AT A GAIN OR LOSS, FOR EACH SPECIFIED YEAR AND FOR THE TEN YEAR AVERAGE

	WHEAT			CORN			OATS			COTTON		
	Gain	Loss	Even	Gain	Loss	Even	Gain	Loss	Even	Gain	Loss	Even
1903–04	6	5	..	8	1	2	7	2	..	..	..	..
1904–05	4	6	1	2	8	1	..	11	..	1	7	..
1905–06	11	..	..	..	11	..	7	1	3	1	6	1
1906–07	5	3	2	7	4	..	11	..	..	3	2	3
1907–08	3	2	1	5	5	1	2	8	1	2	5	1
1908–09	3	8	..	4	6	1	4	5	2	5	2	1
1909–10	..	11	..	..	11	..	5	6	..	3	4	1
1910–11	..	11	..	5	5	1	1	9	1	1	6	1
1911–12	2	9	..	..	10	1	11	..	..	6	2	..
1912–13	..	11	..	6	5	..	3	8	..	2	5	1
1913–14	..	..	..	..	..	..	..	..	..	..	8	..
Ten Year Average	..	11	..	..	9	2	3	4	4	..	8	..

July, and August, the average price of wheat was 4.25 cents a bushel higher in the case of No. 1 northern and 4.23 cents higher in the case of No. 2 northern than during the months of heavy movement to market, *i.e.*, September, October, November, and December.

The Chamber estimates the average carrying charges, including interest, to be not less than nine cents per bushel. "And, if these be taken into account," says the Chamber, "the farmer who held his wheat till the period of light movement to market would have lost in twenty years out of the twenty-nine in the case of No. 1 northern, and in eighteen years out of the twenty-nine in the case of No. 2 northern. Or, to state it another way, the average advance in the price of wheat would not have compensated the prosperous farmer for the cost of carrying for the eight months; or, for example, from the end of October until the end of the following June. And, further, by holding his grain for the twenty-nine years mentioned, and selling the same toward the end of the crop year at the period of the lightest crop movement, it is manifest that the additional price received, on the average, would not cover the cost of carrying. . . . In other words, it appears that the northwestern wheat producer, whose creditors

gave him no choice in the matter and whose necessities compelled him to market his grain each year for twenty-nine years immediately after the harvest was, if anything, more fortunate on the average, so far as net results are concerned, than his more prosperous neighbor who was able to dispose of his grain at the end of the crop year."

I wish now to call attention to the statistics on this question of whether or not it pays to hold for higher prices, as presented by the statistician of the Farm Bureau, and published in its official organ. (*American Farm Bureau Weekly News Letter,* August 31, 1922.) These statistics cover practically the same period as my figures given above. The average difference between the highest and the lowest contract price for wheat over a ten-year period is given at 14.1 cents a bushel. As the cost of carriage is from twelve to fourteen cents this difference is practically wiped out.

The average gain from holding corn is given as 12.3 cents per bushel, which, owing to the heavy shrinkage of this grain in storage, is not sufficient to meet the carrying charges. The average gain from holding oats is given at 5.18 per bushel. This amount will just about meet the carrying charges. The difference in the case of rye is 8.6 cents; in the case of barley, 7.1 cents per bushel. In both cases there is nothing left after carrying charges are met. It must be borne in mind that these differences represent the extreme range of seasonal prices and can measure the farmer's gain from holding only on the assumption that if he does not hold he will sell on the lowest market of the season and that if he does hold he will sell at the peak of the season's prices. A very violent assumption, indeed. In this connection reference is made to "months in which prices are usually high." It is true that if there were such months the problem of hitting the high prices of the season would be greatly simplified. The holder would merely wait for these months to come around and then sell. But that there are no such months a study of the monthly fluctuations must convince the most sceptical, as is shown by the following table, which has been compiled from the statistics given above, and which shows for each of the years 1903-1912 the month of highest price for wheat, corn, and cotton respectively:

MONTH OF HIGHEST PRICE

Commodity

	Wheat	Corn	Cotton
1903	July	Mar.	July
1904	Sept.	May	Dec.
1905	Sept.	June	July
1906	July	Sept.	Dec.
1907	Oct.	Sept.	May
1908	July	May	July
1909	July	Jan.	Jan.
1910	Sept.	Nov.	Mar.
1911	Oct.	Apr.	July
1912	Sept.	Sept.	June

The belief that prices immediately after harvest are unduly depressed by the too rapid movement to market is strongly intrenched in the Department of Agriculture, and it is not strange, therefore, that the advocates of the holding movement have drawn their inspiration chiefly from this Department. Among the arguments put forth by the Department in advocating the establishment of licensed warehouses was the argument that such warehouses would enable the farmer to store his products and hold them for satisfactory prices. (*Bulletin* 277, p. 304.) The Department also took the initiative in demanding that the farmers be given more adequate credit facilities for holding and it actively supported the Intermediate Credit Act.

Credit for holding is given much attention in the 1921 *Year Book* of the Department and it will not be out of place to call attention to some of the arguments therein set forth. After the various needs of the wheat farmer for credit have been discussed, the statement is made that, "Credit is also needed in case prices at threshing time are so low that holding the wheat seems desirable" . . . "the large part of the wheat crop is marketed in a few months after harvest which causes a rapid decline in prices during the first few months of the new crop year. This is one of the principal causes for the need of credit for storing grain. Rapid release of a large volume of the crop, however, may have the effect of congesting transportation and storage facilities and depressing the price. By market credit, in so far as the farmer is concerned, is meant chiefly the credit which is needed after the grain has been harvested and which will enable him to market his grain in an orderly manner."

It will be interesting to review briefly the statistics presented in this same volume in support of the views just presented. On

page 142 are given diagrams showing the average price movement over the five year period, 1909 to 1914, for all wheat for the United States, for winter wheat for Ohio and Kansas and for spring wheat for North Dakota. From the diagram it is seen that the extreme seasonal variations for all wheat for the United States was ten cents; for Ohio winter wheat, twelve cents; for Kansas winter wheat, eight and one-half cents and for North Dakota spring wheat, eleven and one-half cents. In each case these differences measure the extreme seasonal range in price, and the holding period, if from the low of September to the high of the following July, is a period of ten months.

It must be evident that the chances for the wheat grower to make a gain at all commensurate with the costs involved is very slight indeed, and yet on the same page with this diagram one reads: "A large part of the wheat crop is marketed in a few months after harvest which causes a rapid decline in prices during the first few months of the new crop year. This is one of the principal causes for the need of credit for storing grain."

"The average difference in the price of corn between the low of December 1 and the high of September 1 is given as fifteen cents." (*Year Book*, Department of Agriculture, 1921, p. 213.) The shrinkage of this grain over the holding period is given at 16.6 and if this single item of the carrying charges be taken into account the difference shrinks to three cents per bushel. Before even this can be considered as profit all the other items of expense growing out of the holding must be met.

A great deal has been written and spoken about the demoralizing influence of the after harvest dumping of cotton on an already glutted market and the importance of credit to enable the grower to hold his cotton for a more orderly marketing has often been stressed. As a result the holding movement has been more extensive in cotton than in any other of our staple crops. And, despite the disastrous experience of 1920 and subsequent years, the sentiment favoring the holding of cotton for higher prices under the guise of orderly marketing is well nigh universal among the growers and among the officials who come in touch with the industry.

The *Year Book*, in referring to the warehouse, says: "It is a place where cotton may be deposited under conditions which enable the owner to obtain money in advance upon it until such

time as he may desire to sell," and, "that the warehouse act facilitates the use of the warehouse receipt by holders in financing themselves while holding for favorable market conditions." (p. 377-8.)

"A large proportion of the cotton crop," the *Year Book* states, "is annually marketed from September to January, inclusive. This heavy marketing ordinarily depresses the farm price which rises slowly as the marketing diminishes." Above this statement is a diagram showing the movement of the farm price of cotton from 1910 to 1914. This shows that the extreme fluctuation over this period was less than two cents a pound. The lowest price, which occurred during November and December, the period of heavy marketing, was slightly more than ten cents and the highest price, that of July 1st, the time of light marketing, is slightly under twelve cents. (Ibid. p. 383). These figures speak for themselves.

Many authorities have talked much about the so-called "autumnal dip" in prices and have assumed that it is primarily due to the too rapid marketing of the new crop. As a matter of fact when other factors do not counteract it, it is primarily due to the removal of the carrying charges which, of course, gradually attach themselves to the new crop. While this autumn depression may be of some significance to shrewd speculators, it is more than doubtful that it can be of any practical significance to the farmer, who, at any rate, is no wiser than the expert dealer, who hedges his purchases because, says the Department, "the purchase of cotton in quantity for any purpose without hedging would be considered such speculation that the banks would not finance the deal." (*Ibid.*, p. 387.)

The much talked of congestion due to too rapid marketing of agricultural products is largely a myth in so far as the United States is concerned. This is prevented to a great extent by certain factors which no man-made regulations can get around. First of all, in a country as large as ours there is a wide variation in the crop season; our wheat harvesting, for example, begins in the southern part of the territory as early as June, while in the northern sections it is in full swing in September. Furthermore, in regions in the same latitude winter wheat will be ready for harvesting earlier than the spring wheat, and in any region the threshing period must extend over a considerable length of time.

The exigencies of agriculture permit one farmer to thresh out of the shock and so get his grain ready for marketing weeks earlier than his neighbor who threshes out of the stock. In the case of such grains as corn and oats, an important steadying factor in marketing is the fact that in many cases it is only the farmer's surplus, after the demands of live stock have been met, which is placed on the market, and the amount of this surplus cannot be ascertained since it depends on weather conditions—for example, on the length and severity of the winter and on whether the price of live stock in comparison with the price of grain makes it worth while to have a long or short feeding period. The marketing of wheat will also be materially affected by its price as compared with the prices of the grains usually grown for fodder. For example, it often happens that large quantities of wheat intended for human consumption are fed to stock owing to the relatively high price of corn.

The same general statements apply to cotton as to grain. Cotton picking begins in southern Texas in June, while in Georgia it is not in full swing until August; and not all the cotton in the same field is ready to harvest at the same time—indeed there are usually three pickings, the first bolls opening in August and the last in December or even in January; and it often happens that while the farmer is preparing the ground for a new crop the last bolls of the past season's crop are being gathered. Nor is it possible to gin all cotton as soon as picked, and so the ginning period extends over months.

Furthermore, the fact should not be lost sight of that there are many conditions in agriculture which make it necessary or economic for certain farmers to hold their products. Landlords, for example, have to wait on the convenience of tenants to deliver their grain to the elevator, and well-to-do farmers who have a surplus of funds and excellent storage facilities may think it worth while to hold their crops.

That nature and economic conditions which are largely beyond the control of man force the orderly marketing of crops will be easily seen by a study of the figures for relative average monthly receipts (see Tables I-IV). On the assumption that the monthly movements of wheat to Chicago and Minneapolis are indicative of the movements to all markets, it is seen that the marketing of wheat is fairly well distributed throughout the year. The

average number of bushels delivered in August during the ten year period is 11,879,900, or 9.8 per cent of the total average delivery for the year; in September it is 15,658,300 bushels, or 12.9 per cent of the total delivery, and this is the maximum for any month. The months of small delivery are April, May, and June, with percentages of 5.2, 5.1, and 4.4, respectively. In the case of oats the average number of bushels delivered in August is 12,377,800, or 13.2 per cent of the total average delivery for the year, and this is the maximum for any month. The months of small delivery are December, February, April, and July, with percentages of 6.7, 6.7, 6.6, and 6.2, respectively. In the case of corn, the average number of bushels delivered in December is 10,949,900, or 10.4 per cent of the total average delivery for the year; in June it is 13,097,600, or 12.4 per cent of the total, and this is the maximum for any month. The months of small delivery are April, May, and October, with percentages of 5.3, 5.5, and 5.5, respectively. In the case of cotton the average number of bales delivered in October is 1,163,400, or 18.5 per cent of the total average delivery for the year; in November it is 1,275,500 or 20.3 per cent of the total, and this is the maximum for any month. The months of small delivery are August, May, June, and July, with percentages of 2.6, 2.6, and 1.6, and 1.2, respectively. The average number of bales of cotton ginned in October is 4,526,110, or 37.0 per cent of the total, and this is the maximum for any month; in November it is 2,737,399, or 22.4 per cent of the total. The months of small ginnings are August and January, with percentages of 4.1 and 2.2 respectively.

Up to this point the discussion of price movement has been confined to those products which are traded in on the organized exchanges. I will now consider the price movement of an important product, wool, in which organized future trading is absent and which therefore, while actively speculated in, is not subject to the same stabilizing influence as wheat, for example.

The bulk of the wool is removed from the sheep's backs during the months of May, June, and July; and, if the wool grower is so inclined he may grade and dispose of all his wool by the end of this period. Under normal conditions, July is the month of heavy movement to market; and during this month we should expect, according to the advocates of holding, a glutted market and low seasonal prices. However, a study of the price movement over

the twelve-year period, 1910 to 1921, reveals no such condition. The average farm price for wool for the quarter ending July 31st is given by the Department of Agriculture at twenty-nine and one-half cents per pound. For the quarter ending December 31st the average price was twenty-seven and eight-tenths cents per pound and for the quarter ending April 31st, almost a year after shearing, the average price was thirty cents per pound.

If the farmer had sold in July, when his wool was ready, he would have received twenty-nine cents a pound. If he had held for the very highest seasonal price, that of the following March he would have received thirty and six-tenths cents per pound. The difference, one and six-tenths cents a pound, minus the cost of carrying, represents his gain.

The quarterly prices for scoured territory wool, Boston, covering the same period, are quite as convincing. The average price for the quarter ending July 31st was $1.02 per pound; for the quarter ending December 31st, $1.00 6/10 per pound and for the quarter ending April 31st, $1.00 3/10 per pound. (*Year Book*, Department of Agriculture, 1921, p. 720.)

Statistics covering the four years from 1922 to 1926 show substantially the same results. In every year but one, if shrinkage and carrying charges be taken into account those farmers who did not sell their wool immediately after shearing suffered severe losses. (*Year Book*, Dept. of Agriculture, 1925, p. 1173. Crops and Markets, Jan. 1927, p. 32.)

The study of price movement for other agricultural products not traded in on the exchanges show results paralleling those for wool. The conclusion is, therefore, inevitable that the normal working of the law of supply and demand in the highly developed market of today brings about such an adjustment of prices that the withholding of crops from the market for higher seasonal prices does not usually result in gain to the holding farmer but may involve him in speculative losses. He is fortunate indeed if his delayed marketing compensates him for his carrying charges. This significant fact is not openly admitted by the advocates of the Holding Movement but the entire trend of recent attempts at legislation for farm relief speaks eloquently of its tacit acceptance by them. For the past three years they have placed emphasis not upon the advantages of later seasonal prices but upon the possibility of raising prices through the creation of a

scarcity value. In other words they insist that the normal working of supply and demand does not guarantee to the farmer his cost of production plus a fair profit.

The real significance, therefore, of the demand for credit for holding for higher prices lies in the second proposition, viz., that the working of the law of supply and demand does not bring about satisfactory prices and that what is sought is not the normal market price but something more, namely, a satisfactory price, or a fair price.

Secretary Wallace has accurately stated the real philosophy underlying the holding movement as follows: "The energy and the intelligence with which the farmer works, the number of hours he works, the cost he incurs in producing crops—none of these are considered in determining the price." (*Year Book* of the Department of Agriculture, 1921, p. 2.)

The outstanding attempts to secure cost of production plus a reasonable profit by resort to holding and so-called orderly marketing are: the coffee valorization scheme of the Brazilian government, the various attempts to control Cuban sugar production, and the activities of the raisin growers' cooperative marketing association and of the cooperative wheat pools.

During the first decade of the present century the Brazilian growers of mild coffees were in a serious situation. Bountiful harvests had created an oversupply and had forced prices below cost of production. There was a persistent demand on the part of the growers for Governmental relief and finally the Government undertook to raise the price of coffee by the purchase and storage of a sufficient part of the coffee supply to enable the balance to be marketed at a "fair" price. The Government fixed the minimum price and undertook to buy all the coffee for which the grower himself could not find an outlet.

This coffee in the hands of the Government was placed in storage houses at home and in Europe. The undertaking was financed by the issue of paper money against the coffee in storage, which was to be retired as the coffee was disposed of on the market. This plan is the well known valorization scheme. It was adopted as a temporary measure to meet a temporary crisis. The materially higher prices brought about by valorization relieved the financial situation of the growers but also stimulated the production of coffee at home and abroad, and as a

result the Government was faced with ever increasing supplies which it had to buy in order to sustain the market. By 1917 the situation had become critical, and disaster threatened the Government as well as the growers. The situation was saved, however, by the killing frosts of 1918, which not only curtailed the current crop but wrought such damage to the coffee plant that normal crops were out of the question for some time to come. The destruction wrought by the frosts enabled the Government to market its stocks in storage at satisfactory prices.

However, the depression following the Armistice brought a new crisis, and, importuned by the growers, the Government instituted a second valorization, the outcome of which was a very severe financial loss.

But this did not deter the advocates of valorization. It became a political question and in the early part of the year 1922 valorization, which had been instituted as a temporary measure to meet what was supposed to be a temporary emergency, became a permanent policy of the Government.

Since the Brazilian valorization has been perhaps the chief inspiration for the Holding Movement in this country, it will not be out of place briefly to summarize the salient facts concerning it.

In the first place, the conditions surrounding the Brazilian coffee industry are highly favorable for such an undertaking. Brazil has a practical monopoly of the production of mild coffees, and she produces about three-fourths of the total coffee supply of the world. The growing of coffee is by far the most important industry. Production is concentrated in the hands of large producers and not only does coffee not waste or shrink during storage but it decidedly improves in quality. Finally, coffee does not undergo elaborate processes of manufacture on the way from the grower to the consumer; and as it is a quasi luxury its consumption is not unduly sensitive to change in price. It would seem, therefore, that the grower of coffee, assisted by his government, should be able, within reasonable limits, to regulate the marketing and the price of his commodity; and it would seem that under such circumstances he should be able to escape the tyranny of the law of supply and demand and to gain for himself the much sought after and ever elusive "fair price." But Brazil's experiment has brought about altogether different results.

First, the unmanageable surplus of the first valorization was

taken care of only by the adventitious circumstance of the frosts of 1918.

Second, while the object of valorization was declared to be the stabilization of the market, the result has been quite the opposite. The arbitrary and uncertain action of the Government has made speculation more hectic and prices more irregular. Buying of coffee has become a "hand to mouth" affair. The arbitrary action of the Coffee Institute and its high handed methods have aroused antagonism among buyers the world around. It has not hesitated to break its contracts (see *Wileman's Brazilian Review*, January 26, 1927), and it has so often deliberately underestimated the coffee crop that no one in the trade takes its estimates seriously. The Institute has boosted prices on supposed crop shortage. It estimated Sao Paulo's 1926 crop at from seven to seven and one-half million bags, whereas the final crop was 10,129,000 bags. (*Ibid.*, Jan. 6, p. 29.) It must be admitted that owing to labor conditions and the difficulty of overcoming inertia in the tropics, the situation created by valorization has been only partially remedied by increased production in other countries, although the coffee trade believes that such increased production must eventually come about. However, there has been no control over the increase in domestic production and since the beginning of valorization Sao Paulo—the chief coffee producing state—has doubled its potential production, having increased the number of its trees from five hundred million to one billion (*Ibid.*, March 25, 1926); and the actual Brazilian supply has increased from year to year. Brazil's ability, in the face of increasing supplies, to maintain high prices has been due to no inconsiderable degree to the enormous increase of consumption which has taken place during the valorization period.[1]

An expert, anticipating the time when supply will be in excess of demand, says, "An excess of supply over demand will be the 'bear' factor which the United States, the greatest consumer of coffee, has been patiently waiting for to retaliate against Brazil's defense policy, namely, the forcing up of prices or maintaining them at fictitiously high levels by virtue of restrictions." (*Ibid.*, Dec. 6, 1926, p. 1613.)

[1] The world's consumption of coffee has increased from between seventeen and eighteen million bags to between twenty-one and twenty-two million bags. (*Wileman's Brazilian Review.*)

Third, the promise that the paper should be retired when the particular need for it had passed has not been kept. Coffee valorization has been a most fruitful source of inflation, with the result that it is directly responsible for the growing demoralization of Brazilian industry and the chief obstacle in the way of improvement in the Brazilian exchange situation. This unstable exchange has brought ruin and distress to all the other industries in Sao Paulo [1] but their just protests against the intolerable situation created by the selfish demands of a single industry have fallen on deaf ears; for the Government has found itself more and more at the beck and call of a cabal of selfish and rapacious growers who persistently demand higher prices for their product but make no attempt to restrict their production.

While, on the surface of things, the Brazilian volarization seems to have been successful in that up to this time it has brought higher prices to growers, even a little investigation below the surface reveals the fact that this slight filip to price has been secured at an awful cost. To the advocates of the Holding Movement in the United States, Brazilian coffee valorization should be, not a light house marking the entrance to a safe harbor, but a whistling buoy marking a dangerous reef.

The War brought unprecedented prosperity to the Cuban sugar planters, but, as in the case of other industries, the subsequent deflation brought about a crisis. During the War sugar was subject to much regulation, as regards both consumption and prices. As a result, conditions in the industry became highly artificial, and the collapse, therefore, was most profound. By the late autumn of 1920 the price of Cuban raw sugar had fallen to an almost unprecedented level. In an attempt to meet the crisis the Cuban Sugar Commission was formed. This Commission declared that its purpose was the stabilization of raw sugar prices. It immediately indicated what it meant by stabilization by advancing the price of raw sugar about a cent a pound. It announced that this new price should be the minimum export price and notified the New York Exchange that trading in sugar

[1] That the coffee planters themselves do not always escape the evil consequences of valorization, is shown by a statement from a correspondent who had intimately studied the situation of the planters. He says, "As to the Defense Politicians, people are now beginning to realize that instead of their being a help their policies have only created a lot of misery in that many planters have fallen into the hands of usurers. (*Ibid.*, Dec., 1926, p. 1598.)

must be kept within certain defined limits. The price of refined sugar was advanced to meet the new price of raw sugar. A well known refiner gave out a statement to the trade that "this new price was just about right."

The Commission had almost unlimited funds at its disposal and the planters were to be furnished the requisite credit to enable them to withhold their crop from the market; but, despite all these efforts, the price of raw sugar refused to advance. Then the Commission attempted to devise schemes for dumping the surplus on the European market and agitated for a seventy-five per cent curtailment of the future crop. This failed quite as signally and the baffled Commission retired from the field.

In the meantime, the sugar situation righted itself, and owing to a good demand, prices advanced and the industry again prospered. "If," says an authority, "the Cuban Sugar Commission had had its way, in place of the present prosperity, the Cuban planter would be facing ruin and the world would be in the throes of a sugar famine."

When, however, in 1925, sugar prices again became unfavorable the agitation for some action to relieve the situation was renewed. In 1926 a legislative act was passed providing that the grinding of the 1926-27 crop should be delayed until Jan. 1, 1927; and it was finally decreed that the Cuban sugar production should be cut ten per cent below that of the previous year. Production was to be prorated and any producer turning out more than his pro rata share was to be fined $20.00 for each surplus bag.

The experiment is still in progress, but its probable outcome is not difficult to foresee and may be briefly stated as follows:

Disputes, charges and counter charges fill the air, each producer complaining that he is a victim of discrimination. The number of mills grinding was larger in Jan. 1927 than at the corresponding time a year earlier, though the output was slightly smaller. Weather conditions have been, for the most part, unfavorable for the sugar crop the world over and Cuba has not escaped. Moreover her prospective supply has been greatly curtailed by disastrous cane fires. Many experts insisted at the time the cut was made, that ten per cent was too large; and later developments have been borne out their contention. Indeed, at the time of this writing, responsible experts maintain that the falling off in production, working with increased consumption, have created a

sugar scarcity and that the 1926-27 sugar crop will fall far below consumption requirements. (Lamborn & Co., in the *Wall Street Journal*, February 23, 1927.)

But the more important phase of the situation from the standpoint of Cuba is, that her unaided attempt to raise the price of her product by creating a scarcity value may work irreparable damage to her leading industry. Unlike coffee, sugar production, if prices are high enough, can be quickly expanded; and when once the industry is established in new fields, it tends to become permanent. At the present moment there is a widespread movement to expand production where the industry is now established or to take it up in countries where sugar has been produced not at all or only in small quantities. For years beet sugar has been a formidable rival of cane sugar and its competition has often brought disaster to cane sugar producers. In almost every country in Europe, including Denmark and the Irish Free State, beet sugar production is receiving serious attention. The United States is also expanding its acreage and it has an almost unlimited area favorable for the raising of sugar beets. And tropical lands are planning increased cane plantings. Once these new sources of supply become established, they will contend sharply to maintain their position.

No country in the world can produce sugar cheaper than Cuba; it is the natural home of cane; the labor supply is good and capital has not been lacking. Cuba of all producers can least afford to create competition by an appeal to scarcity value. It is notorious that her productive methods are antiquated and costly. Her salvation lies in making them efficient and relatively cheap. By pursuing such a policy, instead of narrowing her market she will widen it and instead of inviting new competitors she will, by virtue of her superior productive position, keep new ones from entering the field.

The correctness of this position has just been strikingly borne out by a statement in our financial journals to the effect that our American alcohol producers, irritated by the high price for Cuban molasses—their raw material—are drawing their supplies from Europe at a price materially below that which those in control of the Cuban supply are willing to accept.

In 1912 the raisin growers of California formed a cooperative marketing association, with a view to improving the situation in

the industry. Market conditions were carefully studied, packing and grading were vastly improved, and the consumption of raisins was greatly increased by better salesmanship and extensive advertising.

In 1912, California produced seventy-five thousand tons of raisins. (*Year Book,* Department of Agriculture, 1925, p. 282.) The cooperative association handled 33 per cent of the crop and growers received, on an average 3.6 cents per pound. The costs of advertising for this year are not available but in 1914, $120,803, or 1.9 per cent of the gross sales, was spent for that purpose. (*Bulletin* No. 1302, Department of Agriculture, p. 170.)

From 1912 on, there was an almost vertical rise in the volume of raisin production in California and by 1920 it had reached 200,000 tons—an increase of 167 per cent. (*Year Book,* 1925, p. 282.)

Despite the increase in production the association did not see fit to lower prices, but forced them still higher; and in 1920 growers received an average price of 12.7 cents per pound, which was the maximum price in the history of the California raisin industry,—an increase over 1912 of 307 per cent. (*Bulletin* 1302, p. 70.)

The high price stimulated the planting of raisin grapes at home and abroad. In California alone the increase in 1920 amounted to 25 per cent of the total former acreage and in this year the importation of raisins was equal to the combined importation of the four years immediately preceding. (*California Crops,* 1921.)

As in the case of coffee, the situation was partially saved by a purely adventitious circumstance—the demand for raisins due to prohibition. Despite this help, however, about one-third of the crop was unmarketed at the end of the season and the association was face to face with that Old Man of the Sea—an unmarketed surplus. In order to get this surplus out of the way of the new crop the price committee of the association set the price on July 31, 1921, at thirty-three and one-third per cent below the July price of 1920, and a year later it fixed the price for the carry-over (which amounted to about 35,000 tons) at from thirty per cent to thirty-six per cent under the price of July 31, 1921. However, despite this situation, the committee fixed the price for the 1922 crop at one-half a cent a pound above that of 1921. Owing to the high price, the domestic market was unable to absorb the

huge supply and the export demand was almost negligible. "It is apparent," wrote an authority, "that the price of raisins f.o.b. San Francisco is too high to include raisins for export." (*Western Canner & Packer,* August, 1922.)

By 1923 production had mounted to 275,000 tons—an increase over 1912 of 267 per cent; and in that year prices to growers fell below those of 1912. (*Sun Maid Raisin Year Book,* 1926, p. 8.)

In 1924, the gross sales of the Association were only $15,600,000, as compared with $44,000,000 in 1920. And prices to growers fell below 3 cents a pound—that is, decidedly below the pre-war level. (*Ibid.,* p. 8.)

In 1923 advertising costs reached the maximum of $3,856,000 and in 1924 they were $2,539,000, or 16.26 per cent of the gross receipts. (*Ibid.,* p. 8.)

In 1918 the association entered into a contract with the growers to purchase their raisins at a minimum price of 3.5 cents a pound for the years 1918, 1919, and 1920, with a clause providing that the growers had the privilege of extending this contract for three more years. When, however, prices of raisins rapidly advanced, growers tried to repudiate their contracts, believing that they could get better prices outside the association. The association sought redress in the courts and growers were enjoined from selling their product elsewhere. But with the collapse of the raisin market and the consequent financial distress of the association, the contracts with the growers were automatically cancelled. While the association has been reorganized and new men have been placed in control, growers are dissatisfied; and, although, owing to the utter lack of frankness on the part of the officials, it is impossible to discover from the reports of the association just what it is accomplishing, the statistics just quoted are quite sufficient to show that the association has signally failed to win satisfactory prices for its members.

He who runs may read this sorry tale of an attempt to work against economic laws instead of with them.

For a number of years one of the most persistent demands that the farmer shall be put in a position to hold his product for higher prices has come from our wheat growers. In 1900, although the after harvest prices of wheat were still very high, they had receded from the war peak and farmers refused to sell at what they considered a low price level and cooperative wheat pools

were formed for the purpose of holding till prices should recover. The grain was put in storage unhedged and against it the farmers were given credit based on what were considered conservative prices. However, the price continued to decline and the wheat was finally disposed of at prices greatly below those on which the advances to the growers had been based, with the result that the pools collapsed and the holding farmers suffered very severe losses. Undeterred by this experience, the advocates of pooling have continued to increase in number and much wheat has been pooled in the northwest and the southwest, with about the same outcome as in 1920.[1] In this connection is to be noted that the difficulties encountered in increasing the price of coffee, sugar and raisins above the market are as nothing compared to the difficulties of securing a super-market price for a staple crop like wheat.

Wheat is a prime necessity. It is grown and consumed over practically the entire civilized world. Its consumption is not materially affected by either sentiment or agitation. It is grown in almost all climes by a vast number of farmers; and any slight stimulant, such as an increase in price, readily brings about an increased production. It is non-perishable and lends itself easily to transportation. It is bought and sold freely on the exchanges of the world. Every shred of information concerning existing supplies, prospects for future supplies, condition of growing crops, strength of demand, etc., is eagerly sought; and an army of experts are constantly at work supplying this information. In a word, wheat is grown and consumed in all parts of the world and its price is fixed in a world market. Therefore, when an attempt is made to raise the price above the market, difficulties of all sorts are met at every turn. The domestic price, if it be above the market, can be maintained in the face of foreign grain only by a high tariff. The resulting exportable surplus must be sold at a loss on the markets of the world and since, from the very nature of things, the undertaking is too great for private enterprise, such a scheme cannot be put into operation except by the

[1] The advocates of the Holding Movement have finally been forced to take cognizance of the enormous losses suffered by cooperatives in holding unhedged crops for higher prices and they were able to have included in the late Haugen-McNary Bill (Sec. 12) a section which provided that the Government should insure any cooperative holding association "for periods of twelve months against decline in the market price of such commodity at the time of sale by the association from the market price of such commodity at the time of delivery to the association."

Government. The intermediate producer must be taken care of; for, if the price of wheat to the miller is fixed he in turn must be protected in the price of his flour. Production must be regulated; otherwise the supply will swamp the price fixing machine. The financing necessary for such an undertaking cannot be compassed by private effort but must be undertaken by the Government. And, fantastic as all this sounds, nothing less could enable the advocates of holding for higher prices to realize their aims. Incidentally, it is to be noted that such regulation, if carried out even in the case of one staple crop, would be such a disturbing element that the Government would be called upon to come to the rescue, first, of every farmer and finally, of every business man in the country.

The third argument brought forward for granting credit to the farmers for holding their crops is that, by cutting out useless middlemen, it would enable them to deal more directly with the consumer, thus bringing about a radical reduction in marketing costs. Perhaps no other economic question touching agriculture is receiving as much attention at the present time as the wide difference between what the farmer receives and what the consumer pays; and it is evident that if intermediate charges could be reduced it would redound to the benefit of the producer as well as of the consumer. How much saving cooperative holding can make in this respect is a moot question, the discussion of which is outside the scope of this paper; but in passing I might suggest that, as far as I know, there is no evidence of unduly high costs in the marketing of our staple crops and that this plan of holding for higher prices calls for the paralleling of elaborate marketing machinery already in existence and predicates the storage of crops the prices of which will still be subject to all the risks and uncertainty growing out of the tyranny of nature and the machinations of man. Those advocates of holding who claim that the object is, not to raise prices to the consumer, but to do away with the useless middleman, should give proof of their sincerity by eliminating the element of speculation through hedging, wherever possible, all crops put in storage. But as far as I have been able to observe this precaution has never been resorted to, and the holding plan resolves itself into a gigantic speculation which might easily involve the farmer in confusion and ruin.

Lack of space has made it impossible to discuss the role of the

speculator. As a stabilizer of prices both on and off the organized exchanges, he is an important cog in the highly developed machinery of the modern market. Without him it is difficult to see how efficient distribution of our staple crops would be possible. The present marketing machinery, which works almost automatically, while by no means perfect in its operation, still keeps distribution well up to schedule. Just as, if our bodily activities —walking, balancing, etc., were the result of self conscious efforts, we should soon collapse with fatigue, so will our distribution system collapse if we substitute artificial regulation for automatism.

THE EARLY TEACHING OF ECONOMICS IN THE UNITED STATES [1]

Edwin R. A. Seligman

1. *The European Situation*

ALTHOUGH the term political economy was first used in modern times by Montchrétien in 1615, it was not until almost two centuries later that it became common in any of the European countries. The subject matter was treated either in separate books on trade or commerce or in the general works on politics or ethics. It was only after the advent of the Cameralists in Germany and the Physiocrats in France that a more comprehensive treatment was undertaken. In the universities, outside of the general chairs of politics, history and law, the subject continued to be treated, as in Great Britain, by the professors of moral philosophy or natural law.

The earliest chairs dealing specifically with what is now included in political economy occurred in Germany where special professorships of police science or cameral science, later called the science of finance, were founded in the second quarter of the eighteenth century. Thus the first professorship of *cameralia* was inaugurated in Halle for Gasser in 1727, followed a few months later by a similar chair for Dithmar in Frankfort a O.[2] In 1750 a chair of Cameral Science was instituted in the newly-founded Ritter Akademie or Theresianum in Vienna for Justi, who introduced the name of Staatswirthschaft, the German equivalent of Political Economy; and in 1763 a chair of Police and Cameral Science was founded for Sonnenfels at the University

[1] This topic has been treated by Elbert V. Wills, "Political Economy in the Early American College Curriculum," *The South Atlantic Quarterly,* xxiv (1925), 131 *et seq.* Although well written and containing many interesting facts, the article is inaccurate in not a few particulars and overlooks considerable material which has been utilized in this essay.

[2] Roscher, *Geschichte der Nationalökonomik in Deutschland,* 1874, pp. 372, 431.

of Vienna. In the meantime von Bielfeld had introduced the term Political Economy in his *Lehrbegriff der Staatskunst,* 1761 —a translation of his work published in French in the preceding year under the title of *Institutions Politiques.*

In the interval we find progress in Italy. In 1754 the University of Naples inaugurated, through the generosity of Bartholomeo Intieri, a chair of mechanics and commerce for Genovesi, who called the science *economia civile.* In 1768 the Austrian government founded a chair of Public Economy at Milan for Marquis Beccaria; and it was not long before chairs of a like nature were instituted in other Italian universities like Palermo and Modena. Verri introduced the new term in his *Meditations on Political Economy,* in 1771; but three years later Ortes attempted a new nomenclature in his work on *National Economy.*

In Great Britain and France the development came somewhat later, although the subject of Police was included in 1727 in the instruction offered by Jershon Carmichael, who filled the chair of Moral Philosophy at Glasgow. Francis Hutcheson, who succeeded to the chair in 1730, treated the subject more fully and first attracted the attention of Adam Smith. In 1746 Hutcheson was succeeded by Thomas Craigie. In 1752 Adam Smith, who had been appointed to the chair of Logic in 1751, was transferred to that of Moral Philosophy. It was as the occupant of this chair that Adam Smith delivered in the early sixties his well known *Lectures on Justice, Police, Revenue and Arms.*

After Adam Smith's departure from Glasgow no further interest seems to have been taken in the subject until the beginning of the nineteenth century, when Dugald Stewart decided to give a course of lectures at the University of Edinburgh on what he now called Political Economy.

William Pryme, who, as we shall see below, inaugurated lectures on the subject somewhat later at Cambridge, states that hitherto no lectures had been given on Political Economy in any university of the United Kingdom, but that Dugald Stewart, Professor of Moral Philosophy, had, in 1806, added to his own lectures for two or three years a "supernumerary supplemental course in that study." [1]

[1] Cf. *Autobiographical Recollections of George Pryme,* 1870, p. 120.

Pryme was mistaken in stating that the lectures began only in 1806. We are told by Stewart's editor, Mr. Hamilton, that a separate course of lectures on Political Economy was delivered in the winter of 1800 and that these lectures constituted "the only prelections of the kind at that time accessible to the youth of Britain." [1] Lord Cockburn states that "the opening of these classes made a great sensation. The mere term Political Economy made most people start."

Students flocked to Stewart's course from all parts of Great Britain and he counted among his auditors many who were later to achieve great distinction. Among them were Lord Lansdowne, Lord Semple, Lord Cochrane, Lord Calthorpe, Lord Cuninghame, Lord Brougham, the Earl of Lauderdale, Viscount Palmerstone, Sir Henry Jardine, Jeffrey Drummond, Sidney Smith and Francis Horner. As Sir James Mackintoch tells us: "without derogating from his writings it may be said that his disciples were among his best works." His lectures continued up to the year 1809-10.

In the meantime, the first titular chair was created in 1805 when Malthus became professor of History and Political Economy at the East India College at Haileybury near London in 1805, although formal instruction in the subject did not begin until 1807.

When the Political Economy Club was founded in 1821, George de la Pryme of Cambridge and Dr. Whately of Oxford were elected under the rule which was framed to admit as honorary members teachers of Political Economy at the leading universities.[2] So far as can be learned, however, there were no formal professorships of Political Economy at that time. Professor Pigou, who has been kind enough to inform us that the chair of Political Economy was not founded at Cambridge until 1863, adds: "There was something corresponding to it which was held by Pryme in 1820." And we know that at Oxford the Drummond chair of Political Economy was created in 1825 when Senior was elected to fill the position. Mr. Henry Higgs writes to us: "I

[1] *The Collected Works of Dugald Stewart,* ed. by Hamilton, vol. x, 1858, xlviii.

[2] *Political Economy Club, Minutes and Proceedings, Roll of Members and Questions Discussed,* Vol. VI (1921). The names are given on p. 368. The editor, Mr. Henry Higgs, states on page xvii: "The professors of Political Economy at Oxford and Cambridge were *ex officio* honorary members at the outset."

do not know how to reconcile this with the records of the Political Economy Club."

A somewhat further investigation enables us to throw a little light on this discrepancy. There exist in our library several rather rare pamphlets by George Pryme (not de la Pryme). One is entitled *A Syllabus of a Course of Lectures on the Principles of Political Economy,* by George Pryme, Professor of Political Economy and late Fellow of Trinity College, Cambridge. This is, however, the fourth edition published in 1859. In the second edition, published at Cambridge in 1819, Pryme subscribes himself on the title page as Barrister-at-Law and late Fellow of Trinity College. The preface to the first edition, however, is dated 1816, which shows that the instruction in the subject began not in 1820, as Mr. Pigou thinks, but four years earlier. Another work by Pryme with the date 1823 bears the title *Introductory Lecture and Syllabus to a Course delivered in the University of Cambridge on the Principles of Political Economy.* In the preface he describes the lectures as having been given during the last six years in the University.

Finally it may be said that all doubt as to the matter is removed by the *Autobiographical Recollections of George Pryme,* edited by his daughter and published in Cambridge, 1870. In this work we find full details as to the origin of the title. We are told [1] that before he left college Pryme had already meditated giving a course of lectures on the subject. When he originally suggested the matter he apprehended considerable opposition to so novel an attempt, and waited until Dr. Kaye, Master of Christ's College, became vice-chancellor in 1815. The request was then unexpectedly granted and Pryme began to lecture in March, 1816. He tells us that his lectures "although elementary and eclectic contained somewhat not exactly to be found in any books." He also collected a library of some seven hundred volumes on the subject. His first audience numbered forty-five. Later on, "having given a course of lectures for twelve successive years . . . a grace was proposed in the Senate (May 21, 1828) to confer upon me the title of Professor in Political Economy. It was opposed by that class of persons who are averse from anything new." [2] The proposition was, however,

[1] Chapter vii, p. 120.
[2] *Op. cit.,* ch. x, p. 164.

adopted and Pryme thus became the first professor of Political Economy at Cambridge.

Many years later, namely in 1861, he endeavored to have the chair endowed. He was told, however, that there was no chair of Political Economy, the title only having been conferred upon him personally in 1828.[1] Pryme resigned in 1863; whereupon much to his surprise the syndics resolved to inaugurate a permanent chair of Political Economy, with the generous salary of £200 a year.

The problem as to Oxford is a little more perplexing. We know that in 1825 a professorship was endowed at the University by Mr. Drummond. There is in our library a work entitled *An Introductory Lecture on Political Economy delivered before the University of Oxford on the 6th of December, 1826,* by Nassau William Senior, of Magdalen College, Oxford, A. M., London, 1827. We find on the dedicatory page the inscription: "To the Munificent and Enlightened Founder of this Professorship who occasioned its Delivery, this Lecture is respectfully and gratefully inscribed by the author."

We know, however, that Senior was a student of Whately and that the latter was a tutor at Oriel College from 1818 on.[2] Whether Whately delivered lectures or simply gave instruction is uncertain, but it is entirely probable that in connection with his teaching of Logic, he also touched on economic topics.[3]

While, therefore, there were no titular professorships of Political Economy at either Oxford or Cambridge, the subjects were actually being taught in those institutions and the instructors, Messrs. Pryme and Whately, were with reason elected members of the new Political Economy Club.

Senior was succeeded in the professorship in 1829 by Whately, and when the latter was promoted to the Archbishopric of Dublin, he signalized his appointment by founding a Professorship of Political Economy at Dublin University. The first incumbent of this chair was Mountifort Longfield, in 1832,[4] who was followed by Isaac Butt, in 1837.[5] In the meantime, McCulloch,

[1] *Op. cit.,* ch. xxiv, p. 344.
[2] *Cf. Life and Correspondence of Richard Whately, D.D., Late Archbishop of Dublin,* by Jane Whately, London, 1866.
[3] This appears from the passage on page 37 of Senior's introductory lecture quoted above.
[4] Not Whately himself, as Wills says.
[5] *Cf.* Seligman, *Essays in Economics,* 1925, pp. 111-118.

who had begun lecturing on the subject in 1825 in London, was appointed Professor of Political Economy at University College, London, in 1828.

In France the instruction in Political Economy came a little later than in England. Jean Baptiste Say began in 1817 to give a so-called cours libre in an institution known as l'Athénée, which organized a series of such public lectures in Paris. In 1819 it was proposed to create a chair of Political Economy at the Law School in Paris and an ordinance to this effect was in fact issued. But before it could be carried out, the ministry fell and the next minister of public instruction withheld his consent because he considered Political Economy a dangerous topic which would probably implicate the incumbent in politics.

In 1821, when representations were made to the government that France was the only great country in which there was no instruction in the subject, it was decided to create a professorship for Say at the Conservatoire des Arts et Métiers. In order, however, not to incur the risk of another defeat, the chair was called one of Industrial Economy. Moreover, the Conservatoire was attended by what we should call to-day extension students, who came only in the evening.

It was not until after the Revolution of 1830 that the new government decided to create a chair of Political Economy in the Collège de France, and nominated as the first incumbent, M. Say. When Say died in 1832, he was succeeded by Rossi, and later by Michel Chevalier and Paul Leroy Beaulieu. This remained the only chair of Political Economy until the creation in 1864 of a similar chair in the Law School at Paris.[1]

2. *The Eighteenth Century*

In the American colonies the earliest literature on economic topics concerned itself, as is well known, with currency, taxation and agriculture.[2] The formal teaching of economics began at a considerably later date.

Attention was first directed to the subject by two of the three leading thinkers in the American colonies, Jonathan Edwards, Benjamin Franklin and Samuel Johnson. Of these,

[1] The above details are found in part in de Puynode *Études sur les principaux économistes*, 1868, pp. 354-359; supplemented by information kindly given to us by Professors Gide and Rist.

[2] *Cf.* Seligman, *op. cit.*, ch. iv.

Jonathan Edwards was not much concerned with material things. On the other hand, Benjamin Franklin took from the very outset a lively interest in economic questions. It is significant that in 1749, when he was organizing the academy which subsequently developed into the University of Pennsylvania, he issued his *Proposals for a Complete Education of Youth.* In this document he suggested a course of instruction which, although dealing primarily with history, was to treat of many topics now included under the general name of economics. He proposed that information be given in the curriculum on "the history of commerce, on the invention of the arts, on the rise of manufactures, on the progress of trade, and the change of its seats together with the reasons and causes therefor." [1]

Although nothing seems to have come of this suggestion, we find that, according to an advertisement in the *Pennsylvania Gazette* in 1750, the college at that time included in the curriculum a course of study entitled "Merchants' Accounts." [2] What was taught in this course and how long it continued, we do not know. Perhaps a further study of the contemporary periodical literature may throw some light on the matter. At all events, we hear nothing more of Political Economy or anything resembling it for over a century. The first instruction in the subject at the University of Pennsylvania—unless, indeed, as we suspect, later investigation may disclose the fact that economics was taught by Dr. Vethake in the preceding decade [3]—seems to have been given in the year 1855-6 by the professor of Intellectual and Moral Philosophy, the course being turned over in 1868 to the professor of English.

A more detailed development may be traced in Kings College, the forerunner of Columbia University, founded in 1754. Its first president was the Reverend Dr. Samuel Johnson, born in Guilford, Connecticut, in 1696. He graduated from the college at Saybrooke, now Yale University, where he subsequently remained as a tutor for three years. He became a Congregational minister, but soon went to England and took orders in the Church of England. On his return to the colonies, he settled at Stratford,

[1] *Cf.* Montgomery, C. H., *A History of the University of Pennsylvania from its Foundations to 1770,* p. 500.

[2] We owe this fact to the kindness of Dr. W. C. Plummer, instructor in Economics at the University of Pennsylvania.

[3] See below, p. 311.

Connecticut, in 1723, and became one of the outstanding thinkers of the time. The University of Oxford conferred upon him, in 1743, the degree of Doctor of Divinity, and he was soon recognized as a most learned and distinguished, as well as a liberal, thinker. When the college at Philadelphia was projected in 1749, Franklin endeavored, but without success, to induce him to take charge of the nascent institution. When, a few years later, Kings College was planned, in New York, the promoters turned to him as the most erudite scholar in the colonies, and he was finally persuaded to accept the presidency. In 1754, the first year of the college, he constituted the entire faculty, and as his salary of £250 was clearly inadequate, he was made assistant minister of Trinity Church, at an additional stipend of £150.

Dr. Johnson had written for his sons compendia of Logic and of Ethics, subsequently published in one volume in 1752 for the use of the students at the new college in Philadelphia. He was from the outset much interested in economic questions and in 1754 he prepared an advertisement, which was published in the papers, addressed "to such parents as have now (or expect to have) children prepared to be educated in the College of New York." After descanting on the advantages of a sound moral and religious education and adjuring the parents to refrain from exhibiting themselves as "examples of impiety or profaneness or of any sort of vice whatsoever," he proceeded to explain his provision for "a serious, virtuous and industrious course of life." It is the design of the college, he tells us, "to instruct and perfect the youth in the learned languages, and the arts of reasoning exactly, of writing correctly, and of speaking eloquently." Then follow the arts "of geography, of history, of husbandry, commerce and government." Finally, after adverting to the knowledge of nature, he adds the knowledge "of everything useful for the comfort, the convenience, and the elegance of life, in the chief manufactures relating to any of these things." [1]

What was done in order to carry out this comprehensive plan we do not know in detail. It is a fact, however, that Mr. Treadwell—who had been appointed a few years earlier to teach the senior class in "mathematiks and natural phylosophy"—began his instruction in those subjects in 1757. It is possible that, in

[1] The advertisement is printed in full in *A History of Columbia University, 1754-1904*. New York, 1904, p. 444.

accordance with the best traditions of the old country, some teaching on economic questions was included in the course. However that be, we know that in 1763 a more elaborate plan of education was adopted and that the third-year class now studied the ethics of Hutcheson, and that the fourth-year class studied "Grotius or Pudendorf (*sic*) as well as a continuation of the moral philosophy of Hutcheson *et alienum.*" Inasmuch as it was this same Hutcheson, whose lectures on moral philosophy were attended by Adam Smith, it is not an unreasonable supposition that the course also included, as in the mother country, the subject of police later called political economy.[1]

What happened during the next decade or two is uncertain. In 1784, however, after Kings College had been reconstituted as Columbia College, a committee of the graduates, of which Alexander Hamilton was now a member, reported on the plan of education. The committee recommended, among other things, in addition to three professorships in the Faculty of Law,—dealing respectively with the law of nature and nations, the Roman civil law, and municipal law,—the creation of eight professorships in the Faculty of Medicine, and sixteen professorships in the Faculty of Arts. Two of these latter professorships were to deal respectively with commerce and agriculture and were to be additional to the professorship in moral philosophy. Among the chairs that were actually filled was that of geography.

There has fortunately been preserved a description of the instruction in geography by Professor Gross. He taught to the sophomore class, three times a week, a course characterized as a description of the globe in respect of all general matters, including "the origin of the present states and kingdoms, their extent, power, commerce, religion, and customs." This was evidently the earliest course of which we have any information dealing with economic topics, even though the character of the instruction seems to have been descriptive rather than analytical.[2] A few years later Professor Gross was transferred to the chair of moral philosophy, a subject which he had taught from the very beginning.

[1] The plan of education of 1763 is found in *The History of Columbia University,* p. 451.

[2] As to these points see *History of Columbia University,* pp. 64, 69. So far as Professor Gross' instruction in history is concerned, *cf.* Herbert B. Adams, "The Study of History in American Colleges and Universities," *Bureau of Education, Circular of Information,* no. 2, 1887, p. 60.

There has also been preserved a statement of the content of this course in moral philosophy. Professor Gross divided it into three parts: the first dealing with the law of nature, strictly so-called; i. e., the principles and "laws resulting from the nature of man and his natural relations to God and to his fellow-creatures." The second part treated of ethics and natural jurisprudence, the latter topic including the whole field of civil government. The third part comprised the law of nations. It is more than probable that the second part included the general principles of wealth which were usually discussed at that time in Great Britain under the head of civil government.

The next step was taken in 1792, when a committee of the trustees reported in favor of a new professorship to deal with natural history, chemistry, agriculture and the other arts depending thereon.[1] This report was accepted and in July, 1792, a professorship of Economics was established, the first incumbent of which was Samuel Latham Mitchill.

This is a matter of such interest that it is worth describing in more detail. Dr. Mitchill was a remarkable man. Born at North Hempstead, Long Island, in 1764, he was the third son of a prosperous farmer of English descent, belonging to the Society of Friends. After completing a classical education he studied medicine under his uncle and later under the renowned Dr. Samuel Bard. He then proceeded, in 1783, to the University of Edinburgh, and there secured his degree of M. D. in 1786. On his return to the United States, he was elected, in 1790, to the State legislature and thereafter continued to take an active interest in politics, as well as in science. In 1797 he attended, at Philadelphia, as a delegate to the convention for the abolition of slavery; in 1798, he carried through the bill to enable Livingston to navigate the Hudson River by steamboat. He was a member of Congress between 1800 and 1813, in both the House and the Senate and was in great demand throughout the country for orations on economic and political topics, as well as on natural science. In 1795, e. g., he delivered and published an oration on *The Life and Exploits of Tammany the famous Indian Chief*. We are told that in 1814 he labored "jointly with his patriotic neighbors, with mattock and shovel, in the trenches, to erect fortifications against the enemy."

[1] *A History of Columbia University*, p. 75.

The natural sciences to which he especially devoted himself were medicine, geology, chemistry and ichthyology. He founded a medical journal, was corresponding member of all the important learned societies at home and abroad; and was one of the first trustees of the Congressional Library. He took a deep interest in the welfare of New York City and in 1807 wrote an account of the city, which devoted much attention to social and economic statistics. This was *The Picture of New York or the Travellers' Guide through the Commercial Metropolis of the United States. By a Gentleman, residing in New York.*

One of his principal avocations was agriculture. He was elected an honorary member of almost all the agricultural societies here and abroad, beginning with the Agricultural Society of the Bahama Islands, in 1801, and the Culpepper Agricultural Society of Virginia in 1802. He was for some time President of the Agricultural Society of Young Men in Lancaster County. He was an honorary member of the Philadelphia Society for promoting Agriculture and became in 1820 vice-president of the New York County Agricultural Society. Being also much interested in industry he was elected in 1815 an honorary member of the Berkshire Society for promoting Agriculture and Manufactures. He was a member of virtually all the learned European societies of the day.[1]

The professorship to which he was called at Columbia, in 1792, was entitled Professor of Chemistry, Natural History, Agriculture and Economics. His opening lectures attracted such attention that by direction of the Trustees he published in 1794 "An Outline of the Doctrines in Natural History, Chymistry, and Economics which under the patronage of the State, are now delivering in the College of New York."

A scrutiny of this outline shows that, in 1792 at least, Professor Mitchill understood by Economics what would nowadays be described as economic botany in its application to agriculture. That is to say, the lectures dealt with the economy of cultivated plants or, at most, with what we would nowadays call agronomy. It is with reference to this discipline that we are told of the

[1] *Cf. Some of the Memorable Events and Occurrences in the Life of Samuel L. Mitchill of New York from the year 1786 to 1826.* New York 1826; P. Pascales, *Eulogy on the Life and Character of Samuel Latham Mitchell,* New York, 1831; and John W. Francis, *Reminiscences of Samuel Latham Mitchill,* New York, 1859.

attempt of Mitchill to introduce a knowledge of the new French system."

In the light, however, of Mitchill's political and economic interests, it seems not at all unlikely that he proceeded from the discussions of economic botany and agriculture to other economic topics as well. This hypothesis seems to be confirmed by a statement issued in 1794 by the Trustees of Columbia under the lead of Alexander Hamilton and entitled *The Present State of Learning in the College of New York*. In this document we read that "the incumbent of this Chair [Economics], who is a practical farmer, deals not only with the classification and arrangement of natural bodies, but also treats of a great variety of facts which form the basis of medicine, of agriculture, and other useful arts, as well as of manufactures; and that especial attention is paid to the subjects of gardening and farming."

So far as the actual evidence goes, we must conclude that by economics Mitchill understood the technical economics of agriculture. In view, however, of the facts recounted above, and especially when we remember that the instruction of Professor Mitchill was supplemented by that of Professor Gross, on the history and statistics of trade and commerce, it is a fair inference that the students at Columbia must have gotten, at the time, at least some smattering of what we nowadays call economics.

The only other place where, so far as can be ascertained, economic subjects may have been taught during the eighteenth century, was the College of William and Mary. It has been asserted, in fact, that the teaching of economics in that institution can be traced back to 1784. This assertion was made a few decades ago by Mr. L. E. Tyler, at that time the president of the institution. In view of the wide acceptance of the statement,[1] the matter deserves a somewhat fuller discussion.

The current doctrine is to the effect that in 1784, Bishop Madison, the president of the college, was put in charge of the departments of natural and political philosophy, international law, and political economy, and that thereafter and to the end of the century, Adam Smith's *Wealth of Nations* was one of the textbooks used in the course.

[1] By Mr. Wills, among others, in the article mentioned at the beginning of this essay.

We find an interesting development in the views entertained from time to time by President Tyler.

In 1890 he simply "thinks that political economy was added to the curriculum in 1784, when President James Madison instituted lectures on Adam Smith as part of the course given by the incumbent of the chair of moral philosophy." [1] Jefferson became a member of the board of visitors and governors in 1779 and caused the enactment of a statute which reorganized the college. In lieu of the existing chairs of divinity there were now instituted three professorships. George Wythe was made professor of law and police; Robert Anderson was made professor of moral philosophy, the laws of nature and of nations; and Bishop Madison was made professor of natural philosophy and mathematics. In 1784 President Madison was transferred to the chair previously occupied by Mr. Anderson.

Eight years later Mr. Tyler's opinion is strengthened. He now says: "There is reason to believe that Adam Smith was taught at William and Mary earlier than at any other college"; and he hazards the conjecture that "the use of the *Wealth of Nations* perhaps dates from 1784, when President Madison was made professor of moral philosophy, international law, etc." As to the first part of this statement, he refers to an assertion of Bishop Meade, and writes: "We are told that President Madison was the first to introduce into the College a regular system of lectures on political economy." As to the latter part of the statement the evidence which appears to President Tyler as conclusive is the fact that "in the library of Mr. Stanard is an old edition of Adam Smith, with the autograph of 'Robert Stanard, William and Mary College, 1798,' upon the flyleaf." [2]

In 1900 more confirmatory evidence is supposed to be found in the correspondence of Andrew Reid who refers to forty-three pages of questions on Smith's *Wealth of Nations*, propounded by Bishop Madison.[3]

In the next year Mr. Tyler quotes a letter from R. A. Brock, referring to the three-volume edition of Smith's *Wealth of*

[1] "A Few Facts from the Records of William and Mary College," *American Historical Association Papers*, IV (1890), 455-469.

[2] *William and Mary College Quarterly Historical Magazine*, vi (1898), 181-182.

[3] *Op. cit.*, ix (1901), p. 213.

Nations in his possession, and bearing the imprint, Philadelphia, 1796. This leads Mr. Brock to state that "1796 probably marks the introduction of Smith's *Wealth of Nations* as a textbook, as you seemed to think." [1]

Up to this time we have only opinions and conjectures. Now begins the period of assertions of fact. In 1906 Mr. Tyler wrote an article on the earlier courses in the College, and tells us that under the tutelage of President Madison "Adam Smith's great work and Vatel's Law of Nations were taught at William and Mary earlier than at any other college in the United States." He quotes from a report to the legislature by W. B. Rogers, chairman of the Board of the University of Virginia to the effect that: "in her halls were delivered by Bishop Madison the first regular course of lectures on physical science and political economy ever given in the United States." Finally Mr. Tyler specifically adds that "President James Madison had charge of the departments of natural and political philosophy, international law and political economy." [2] It will be remembered that in 1898 Mr. Tyler referred to Bishop Madison being made "professor of moral philosophy, international law, *etc.*" Now the "*etc.*" is replaced by "political economy," leading to the inference that these words were included in the title of the chair.

Four years later, in 1910, Mr. Tyler repeats the assertion that "James Madison was the first in the United States to teach political economy." Finally, in 1917, Mr. Tyler substitutes still more positive statements. In an historical sketch of the college he now writes: "In 1784 President James Madison, to whom in 1779 Natural Philosophy and Mathematics had been assigned, was relieved of Mathematics and was given the subjects of Political Economy and International Law. This was the first time Political Economy was taught in any American College." As authority for this statement reference is made to the volumes of the *Quarterly* mentioned above, but with no indication that in these volumes there are found nothing but assumptions and beliefs. [3]

The inference from all these statements is that Bishop Madi-

[1] *Op. cit.*, ix (1901), p. 61. "Historical Jottings."
[2] *Op. cit.*, xlv (1906), pp. 71-81.
[3] *Bulletin of the College of William and Mary*, Williamsburgh, Va., vol. x, No. 4, May, 1917. *The College of William and Mary: Its History and its Work.* By Lynn Gardner Tyler, LL.D., President.

son was translated in 1784 to the chair of moral philosophy and political economy, and taught *The Wealth of Nations* from that time on. This understanding of the subject has been generally accepted.

It may be well to analyze the authorities for the above statements. In the first place we are told that a copy of the *Wealth of Nations,* belonging to a student of the College, bears the inscription of 1798. This is indeed a fact. Mr. W. G. Stanard, Librarian of the Virginia Historical Society, was good enough to write to us on October 16th, 1925: "Mr. Robert Stanard was my grandfather. The book of Smith, which came almost accidentally into my hands, contained the inscription 'Robert Stanard, Wm. and Mary College, 1798.' I unfortunately lent it to a man who was preparing to deliver an address on education for a considerable period, and when I asked for it, he claimed to have no recollection of my lending it. But there is no question about the inscription. I have a copy made a long time ago." While the fact, therefore, is undoubted, it is nevertheless no proof of anything except that a student at the college owned such a book.

More significant seem to be the forty-three pages of questions on Smith's work found in the correspondence of Mr. Reid. But Andrew Reid was a student in 1806, and his statement can therefore tell us nothing as to what happened during the eighteenth century. We come next to the assertion of Bishop Meade that President Madison first introduced the subject into the College. But Bishop Meade made this assertion in 1846, and tells us nothing as to when this introduction is supposed to have happened. As Madison remained professor until 1812 it does not follow that he taught political economy in the eighteenth century. Now follows the letter from Mr. Brock, who owned a three-volume edition of Adam Smith, published in 1796. On turning to the passage in question, however, it will be found that according to Mr. Brock's statement the first volume of the work bears the name of the owner and the date 1820. Finally, the statement by Mr. Rogers, made in 1845, also says nothing about the time when this alleged first course on political economy was given. We are thus reduced to the assertion of Mr. Tyler that President Madison had, after 1784, charge of the departments of natural and political philosophy, international law and political economy.

As a matter of fact, however, the term political economy is

nowhere to be found in the designation of the chair or in any other college document during the eighteenth century. Dr. Tyler has been good enough to confirm this fact in a letter to us in which he explains his inferences: "While not certain as to the exact time the lectures on political economy were introduced, I came at last to the conclusion that they began in 1784 when Dr. Madison took over the duties of the moral chair." In another letter Dr. Tyler was good enough to go into greater detail. After repeating some of the above statements he adds: "It is not a farfetched conclusion that Bishop Madison was teaching political economy in 1798 and using Smith's book. I first assumed that the date of the printing of this edition (1796) was the beginning of the study in the College, but later assumed that the subject was taken up in 1784, when the duties of the 'Moral Chair' were taken over by Dr. Madison, political economy being a subject properly coming under that Chair. The terms moral philosophy and politics had to the minds of our predecessors a much broader signification than they have at present. Moral philosophy appears to have meant anything that was not mathematics and natural philosophy. Politics covered everything political and political law covered political economy and political science."

With reference to this statement, however, it must be observed that the term "political law" is not found in the eighteenth century. It was first used at William and Mary in 1817, when Thomas R. Dew was made professor of that subject. Mr. Tyler was mistaken when in 1901 he stated that "Thomas R. Dew was advanced to a chair and given History, Metaphysics, Natural and National Law, Government and Political Economy." [1] In the Faculty minutes of the College of October 7, 1826, as we are officially informed, there is an entry that "Thomas R. Dew, who was yesterday appointed professor of Political Law, took his seat at the board." The secretary first wrote "Political Oeconomy," but later carefully cancelled "oeconomy" and inserted the word "law." As late as 1829, Dew published his *Lectures on the Restrictive System, delivered to the Senior Class of William and Mary College,* in which he still describes himself as "Professor of History, Metaphysics, and Political Law."

We are thus reduced to Mr. Tyler's statement that Bishop

[1] *William and Mary College Quarterly Historical Magazine,* ix, p. 81.

Madison was professor of moral philosophy and that this term probably included political economy. This may or may not have been true of William and Mary College in 1784. But what is certain is that chairs of moral philosophy were found at the time in many of the American institutions. There is, accordingly, just as much or as little justification for the assertion that political economy was taught at William and Mary as would be a similar assertion in the case of any other American college. Moreover, there is no foundation for the statement that because moral philosophy included political economy, the latter subject was first taught in William and Mary College. Moral philosophy was taught in Kings College (Columbia) in 1763; so that if political economy was included in moral philosophy, it is Columbia College, and not William and Mary, to which the honor must be ascribed. As to whether moral philosophy was taught before 1763 in any other American college we have unfortunately been unable to ascertain.

So far, therefore, as the alleged facts of Mr. Tyler are concerned, there is no proof that political economy was taught at William and Mary in the eighteenth century or at a period earlier than at any other American college.

In this connection it will be interesting to quote from a letter of Mr. Chandler, the president of William and Mary, who was good enough to verify the above statements and to institute a careful investigation of his own. His conclusions were embodied in a letter to the present writer. He writes as follows: "Unfortunately there is a gap in our faculty minute books from 1784 to 1817, the period under discussion. This volume has been lost for many years. Our faculty minutes are complete from 1729 to 1784. I have had a careful examination made of the minutes from 1775 to 1784. I do not find the phrase political economy used in the titles of any of the professors in that time nor do I find any reference to a course in political economy by that name." President Chandler then goes on to discuss the statutes of 1792, where a detailed statement is made of all the topics with which a student must be acquainted in order to obtain the degree of Bachelor of Arts. In this list there are included the subjects of Natural Law, Laws of Nations, and the general Principles of Politics. President Chandler adds significantly: "You will observe that no mention is made of political economy."

The next collection of statutes dates from 1817, and now for the first time we find the term political economy. Among the subjects taught are "Law of Nature and Nations, Metaphysics, Politics, and Political Oeconomy."

With reference to the quotation from Bishop Meade on which stress is laid by Dr. Tyler, President Chandler writes: "I have examined Bishop Meade's *Old Churches,* in which he refers many times to Bishop Madison, but he does not use the words Dr. Tyler quotes in volume VI, p. 182, of the *Quarterly.* I do not know where this quotation is from." Furthermore, with reference to the statement of Judge Tucker, President Chandler writes: "I have examined volume VI, p. 186, of the *Quarterly* where Judge Tucker is quoted as saying that in Moral Philosophy the students are examined in Logic, Belles Lettres, Ethics, Natural Law, and Politics. As you observe, no mention is made of Political Economy. This omission seems significant." President Chandler goes on to state: "I do not know what authority Dr. Tyler has for the statement in volume IX, page 61 (referring to the letter of Mr. Brock)."

Finally, President Chandler adds: "The statement in volume XXV, p. 240 of the *Quarterly,* (referring to the courses given in 1815) is quoted correctly. So far as I can find, this is the first time the phrase political economy occurs in the College publications and records. I agree with you that we can say that political economy was certainly taught at William and Mary in 1815. The probability of an earlier date seems to be lacking, unless the book of Robert Stanard shows unmistakable use as a textbook."

This conservative conclusion of Professor Chandler was justified by the facts then at our disposal. Since that time, however, we have run across some material which affords evidence of the fact that political economy was indeed taught at the College of William and Mary in the opening years of the nineteenth century. This evidence is found in contemporaneous letters from students.

J. S. Watson, who was a student at the College in 1801, writes in a letter to a relative as follows: "In the Political Course we are advanced as far as Smith. The Bishop has introduced Locke on Government, which we have read also. I have also read Paine's *Rights of Man.* . . . These three are authors, I believe the most celebrated, and perhaps the most excellent that have written

upon the Science of Politics." [1] A few weeks later he writes as follows: "My studies require considerable labor and exertion. Few sciences are more abstruse are (*sic*) intricate than that of political economy, yet the extensive information, the comprehensive and powerful talents of Smith have thrown upon the subject a light which I believe no other man could have given. In this study I have felt most forcibly the inconvenience of having never studied a system of geography. Upon the subject of politicks (taking this term in its common acceptation) I feel the necessity of historical information." [2]

These extracts prove beyond the peradventure of a doubt that political economy was taught in 1801. In a subsequent batch of letters, however, we find evidence that it was probably taught in 1799. A letter from one of the students, Chapman Johnson, bearing the date 1799, contains the following: "Finding that I could not get through the Bishop's political course before Tucker's (George Tucker, professor of law) commenced, I have thought it best to join the Seniors. I shall consequently begin Rousseau immediately." [3]

Although this student says nothing of Adam Smith, it appears from the Chandler letter that Smith was studied with Locke and Paine; and Rousseau would naturally be studied in the same course.

The conclusions are as follows: The subject of political economy was certainly taught at William and Mary in 1801, and very probably in 1799. It was probably taught in 1798, if the possession of a copy of the *Wealth of Nations* by a student in the college in that year may be considered pertinent. There is no proof that the study was included in the curriculum before that date. Inasmuch as the first American edition of the *Wealth of Nations* was published in 1789, it is almost certain that it was not used as a textbook in the eighties. There is nothing to make us believe that it was taught, as alleged, as early as 1784—for the argument which is used for William and Mary would equally apply to every other college of that date where moral philosophy was taught.

[1] This letter is dated A. R. 25. Some of the letters are dated Anno Rep. '25, *i.e.*, twenty-five years from the Declaration of the Independence or 1801. Letters from William and Mary College 1798-1801, *Virginia Historical Magazine*, vol. xxix (1921), 159-160.

[2] *Op. cit.*, p. 166.

[3] *Op. cit.*, p. 266.

Our final conclusion as to the eighteenth century is that while the *Wealth of Nations* was probably used as a text in William and Mary, as early as 1798, the subjects included under what we call political economy were first taught in Columbia College surely in 1792, and probably in 1784. And in so far as moral philosophy may be supposed to have comprised economic subjects, it was taught at Columbia (Kings College) from 1763 on.

3. *The Nineteenth Century*

It has long been supposed that the first chair of political economy in the United States was instituted at South Carolina College in 1824. This understanding is due to a statement of its president, Dr. Thomas Cooper, who published, in 1826, a volume entitled *Lectures on the Elements of Political Economy.* In the title page of this he describes himself as "President of the South Carolina College and Professor of Chemistry and Political Economy;" and in the preface we find the following statement:

> At the commencement held in the South Carolina College in 1824 I delivered an address recommending the study of political economy and the regular appointment of a professor for the purpose—a proposal at that time new in the United States. The culpable inattention in our country to a science of such extensive application, and the manifest ignorance or neglect of its first principles among our statesmen and legislators, seemed to me imperiously to call for some measures which should force to the public notice a branch of knowledge in which human happiness so much depended. The Trustees of the College were of opinion with me and requested that I should draw up and deliver a course of lectures on political economy to the senior class of the students of the College. On being freed from the professorship of rhetoric, criticism and belles lettres, I delivered in conformity to the request of the trustees the following course of lectures, in addition to my professorship of Chemistry. I hope with good effect.

Thomas Cooper was born in London in 1759, and enjoyed the unusual good fortune of being both a lawyer and a physician. In England he became as a barrister so wedded to radical doctrines that he met with political trouble, especially after paying a visit to revolutionary France in company with Watt, the inventor of the steam engine, as a representative of the British societies. When his friend Priestley emigrated to the United States, he followed and soon attained a distinguished position. He first came into prominence in 1799 when he fell afoul of

President Adams and was convicted under the Alien and Sedition laws, as a result of which he became a popular hero.[1]

In 1813 he turned his attention anew to economic topics, (having first written on the subject in 1799 in his *Political Essays*) and became the editor of the *Emporium of Arts and Sciences*, the object of which was to stimulate the American manufactures during the war. He became a warm friend of Jefferson, who asked his advice in 1814 as to the proposed curriculum of the nascent University of Virginia. It was Cooper who recommended the inclusion of the study of political economy—a suggestion accepted by Jefferson.[2] When the time came to fill the professorships at the University, Jefferson procured his appointment in 1819 as professor of "chemistry, mineralogy and natural philosophy," with a temporary incumbency also of the chair of law. Cooper had in the meantime been professor of chemistry at Dickinson College and, since 1816, professor of chemistry and mineralogy at Pennsylvania.

On account of the attacks made upon his alleged unorthodox religious opinions, he was compelled to resign from the University of Virginia, but was at once elected to a professorship of chemistry in the College of South Carolina at Columbia, S. C. In the following year he became president. In 1823 he wrote *Two Tracts on the Proposed Alteration of the Tariff*, which commanded widespread attention as a powerful argument against the protective tariff. As a result of his interest in these topics, when the trustees desired him in 1823 to teach metaphysics, he remonstrated and suggested the substitution of political economy. Although the Board agreed, he was unable to assume these duties until 1825, when he was relieved of the subjects of rhetoric and belles lettres.[3]

Cooper's *Elements of Political Economy*, of which a second edition was published in 1830, although the title page bears the date 1829 (compare the reference on page 349 to "The Report last year, 1829"), was reprinted in London in 1831. It is a portly volume of 366 pages which, in the words of the author, refrains from entering upon the metaphysics of political economy and

[1] *Cf.* Wills, "The Case of Dr. Cooper," *The South Atlantic Quarterly*, vol. xviii (1919), p. 6.
[2] Dumas Malone, *The Public Life of Thomas Cooper, 1783-1839*. New Haven, 1926.
[3] Malone, *op. cit.*, p. 303.

is intended primarily for the student. In 1833 he published a smaller *Manual of Political Economy.* Among his other contributions was an interesting treatise published, without date, in 1829 on *The Right of Free Discussion.* In this he refers to a preceding treatment of the subject in *The Tracts of Thomas Cooper,* Manchester, 1787, without informing us, however, as to whether, as is probably the case, he was that identical Thomas Cooper. Later on, he supported Biddle in the contest with Jackson and wrote in 1833 *A Series of Essays on the Present United States Bank.* He attempted to persuade Biddle to become a presidential candidate and subsequently, until his death in 1840, acted as Biddle's expert adviser. When Cooper resigned in 1835, his place was taken by a young German immigrant, Francis Lieber, who taught economics, although gradually becoming more interested in political science and jurisprudence, in which subjects he soon attained a commanding influence. Lieber remained at South Carolina until 1857, when he accepted a similar chair at Columbia College, New York, his place at South Carolina being taken by President Longstreet.

In the preface quoted above there are two statements: first "that the proposed professorship was the first one to be created in the country," and second "that the study of political economy was at that time found nowhere else." Both of these statements, as will be seen, are incorrect although they were widely accepted. In the South, at least, it was the contemporary opinion that Cooper was the first regularly appointed professor of political economy in the country.[1] Let us test the accuracy of the statements by tracing, as far as it is possible to do so, the early development in the various institutions of learning.

If we begin with Harvard it may be stated that, so far as can be ascertained, no attention was paid to political economy at Cambridge during the eighteenth century. In 1789 it is true that the executors of John Alford, who died in 1761, founded the Alford Professorship of Natural Religion, Moral Philosophy, and Civil Polity, it being provided that lectures on Civil Polity should be read to the senior class only. The fund, however, was found to be inadequate to support a professor and was allowed to accumulate until 1817. In that year Levi Frisbie was appointed Alford Professor and remained until his death in 1822.

[1] *Cf. The Telescope,* Jan. 1, 1830; quoted in Malone, *op. cit.,* p. 303.

There was assigned to him in 1817 instruction in natural religion, moral philosophy, and civil polity, which subjects, the resolution reads, had hitherto been "included in the department of the professor of Logick, Ethicks and Metaphysicks." The two succeeding holders of the professorship were Levi Hedges, 1827-1832, and James Walker, 1838-1853.

What was understood under the term Civil Polity seems to be uncertain. As appears from the statement on the next page, Civil Polity seems to have been distinguished from Political Economy. Furthermore, in a letter which Mr. William C. Lane, the librarian of Harvard College, has been good enough to send us, he states: "I regret to find that the early annual catalogues of the College give only the lists of students and professors and contain no information in regard to instruction, so that I cannot tell you the character of Professor Frisbie's lectures. I think that it may be safely said that all three of these first holders of the Professorship emphasized the religious and moral side of their subject. With Francis Bowen (1853-1889), the Professorship was distinctly one of Political Economy. The Professorship has since been held by George Herbert Palmer, Josiah Royce, and W. E. Hocking, the present incumbent, all of whom have been philosophers rather than economists."

A search of the corporation and faculty records and annual catalogues of the period, which has been undertaken, through the kindness of Professor Taussig, by Mr. I. H. Gorovitz, has disclosed some interesting information.

The first catalogue of Harvard University to contain a list of the courses of instruction for undergraduates is that for 1820. In it is printed the "Course of Instruction for the coming year," that is, 1820-21. Among the authors and studies assigned to the senior class were Paley's *Moral Philosophy* and a course in "Political Economy." There is nothing to indicate by which professor the subject was taught or what text, if any, was used. The three professors to whom the task might logically have been delegated were: The Alford Professor of Natural Religion, Moral Philosophy, and Civil Polity; the Professor of Logic and Metaphysics; and the Professor of Natural Philosophy.

Whether the subject was taught before 1820 cannot be ascertained. That this is possible may be inferred from the following facts. We find, in the records of the College Faculty, that

one of the subjects assigned for the August "Exhibition" in 1815 was "A Conference on difference of natural Talents, the unequal division of property, and the habits acquired by the practise of different Arts as grounds of subordination in society." [1] At the commencement exercises on August 30 of the same year, the seventeenth item on the program was: "Forensic Disputation. Whether a paper currency be conducive to the public interest." [2] One of the parts assigned at the commencement exercises for 1817 was: "A Conference on the influence of the peace upon the condition of the agriculturalist, the manufacturer, the merchant, and the professional man." [3]

In 1818 we find that one of the commencement parts was "A Forensick Disputation: Whether the exclusion of foreign articles to encourage domestic manufacture be conducive to public wealth." [4] One of the parts assigned for the April Exhibition, in 1819 was: "A Colloquy. On the effects of paper currency." [5] On June 16, 1819, at a meeting of the Faculty, it was voted to suspend a member of the senior class, one Parker, who had been guilty of disobedience and disrespect to a college officer, and to require him to pursue his studies during the whole time of his suspension in *Conversations on Chemistry*, and *Conversations on Political Economy*,[6] both of them by Mrs. Marcet. The final piece of evidence to support the belief, expressed above, is the assignment of two parts for the commencement exercises of 1819. One of these is clearly an economic subject and the other probably so. Number 10 on the program was: "Dissertation. On the utility of the Study of Political Economy, considered in relation to our country." Number 13 was: "Conference. On the characteristics of man and government as found in the savage, pastoral, agricultural, and commercial state." [7]

The upshot of these scattered facts is that the students probably had their attention called to economic topics between 1815

[1] *Records of the College Faculty*, ix (1814-22), p. 23.
[2] *Ibid.*, p. 32.
[3] *Ibid.*, meeting of July 12, 1817, p. 102. "The peace" probably refers to the end of the Napoleonic Wars.
[4] *Ibid.*, p. 142.
[5] *Ibid.*, meeting of March 12, 1819, p. 183.
[6] *Ibid.*, p. 195.
[7] *Ibid.*, p. 199.

and 1820. But this. of course, does not permit us positively to conclude that political economy was taught before 1820; although it is highly probable.

The question still remains as to who taught economics and how it was taught. Although political economy is mentioned in the catalogue of 1820, it must have been included in a more comprehensive course; for the only subjects in which the seniors were examined in 1820 were, according to the faculty records, astronomy and chemistry, moral philosophy, mathematics, and metaphysics and theology. Political economy was, therefore, probably comprised in the course of moral philosophy.

The first mention of any textbook is in the catalogue of 1825, when J. B. Say's *Political Economy* was prescribed. As the first American translation of Say appeared in 1821, it is possible that the text was used a little before 1825.

It appears therefore, that Political Economy was taught at Harvard in 1820, and possibly earlier. It was not until 1841, however, that a separate course in the subject was offered, although even then bearing the name political science. It was now also that we find for the first time a "tutor in political economy." From 1853 political economy was taught by Bowen, Alford professor, to 1871, becoming again a part of the course in moral philosophy, although his own book on *Political Economy* was later used as a text. Finally, in 1871, Charles F. Dunbar was elected to the first separate professorship of political economy.

The statement of Dr. Cooper as to the early teaching of Political Economy is therefore incorrect, so far as Harvard is concerned. But it can also be disproved in a number of other cases.

In view of Dr. Cooper's prominence in the South, it is remarkable that he should have been ignorant of the situation in William and Mary College. At that institution, as we know, Dr. Madison continued the instruction in political economy, with Adam Smith as a text, during the first decade of the century, and until his death in 1812. The course was in all probability continued by John A. Smith, who became president in 1814, and who declared in 1817 that he was then the only teacher of Political Science in any American college. A copy of the synopsis of his lectures

is still extant in the library of the college.[1] We have seen above (p. 300) that political economy was a part of the curriculum in 1815. Furthermore, the statutes of 1817 include in the curriculum "Politics and Political Oeconomy," and refer to the *Wealth of Nations* as a text. Smith was succeeded in 1827 by Thomas R. Dew, who was appointed professor of political law and retained the chair until 1846. It is therefore beyond question that economics was taught continuously at William and Mary during the entire first half of the century, although, until 1826 at least, only as a subject in a more comprehensive course of moral philosophy and natural law.

If we return to the North, we find that in the year before Dr. Cooper actually began his instruction, the subject was taught at Bowdoin College. As President Sills of Bowdoin was good enough to write us, as the result of an investigation made by the librarian, Samuel Philip Newman, a graduate of Harvard of the class of 1816, was made Professor of Rhetoric and Oratory at Bowdoin College in 1824, and there was included in his department "the rising science of political economy." He was, accordingly, also made Lecturer on Civil Polity and Political Economy. This is the first appearance of the term in any college course in New England. Moreover, this juxtaposition of titles seems to indicate that Civil Polity, as then understood, was something different from Political Economy. If this is true, it strengthens our conclusion that the Alford professor at Harvard mentioned above, included political economy under the head of moral philosophy rather than of civil polity. Newman gave one lecture every fortnight on the subject from 1824 to 1827. From 1827 on, it became a regular senior study and an hour was assigned to it daily. The substance of Newman's lectures was published in 1835 under the title of *The Elements of Political Economy,* in which he describes himself as "Lecturer in Political Economy." Newman left Bowdoin in 1839; and while the title of his chair was carried in the catalogue for some years, it seems that no instruction was thereafter given in the subject. It was not until the seventies that it was reintroduced as a part of the instruction in History and Civics; and it was not until much

[1] L. G. Tyler, "The College of William and Mary: Its History and its Work." *Bulletin of the College of William and Mary,* x, no. 4, 1917, p. 8.

later that an independent chair of Political Economy was established.

While the teaching of Political Economy at Bowdoin preceded that of Dr. Cooper at South Carolina, the same fact can be shown in several other institutions in the North.

In two of these, namely Princeton and Dickinson, the instruction was due to the same man.

Henry Vethake, born in British Guiana in 1792, graduated from Columbia College in 1808 and had a checkered professorial career. He taught Mathematics at Columbia in 1812, when Dr. Kemp died. In 1813 he went to Queens College, now Rutgers, and was transferred to Princeton College in 1817, where he remained until 1821. On his resignation from Princeton, he went to Dickinson College at Carlisle, Pennsylvania, where he remained until 1829. He thereupon returned to Princeton, but three years later became a professor in the new University of the City of New York, where he remained from 1832 to 1835. In that year he accepted the presidency of Washington College at Lexington, Virginia. Finally, in 1836, he was called to the chair of Mathematics at the University of Pennsylvania. In 1846 he was made vice-provost at Pennsylvania and in 1854, provost, and shortly thereafter resigned the chair of Mathematics and became professor of Intellectual and Moral Philosophy.

Although devoting himself primarily to mathematics, Mr. Vethake soon turned his attention to political economy. When he came to New York he published in 1833 *An Introductory Lecture on Political Economy delivered at Clinton Hall before the New York Young Men's Society, December 22, 1832,* which is referred to by the corresponding secretary of the Society as an eloquent and profound address. A few years later, in 1838, he published a large volume on *The Principles of Political Economy.* In the preface to this work we find the statement that "the theories are now presented in the same form as that in which they have been delivered in the author's courses of Political Economy, beginning so long since as the year 1822."

Knowing that he was at the time professor at Dickinson College, the present writer addressed the authorities of that college in the hope of ascertaining some details on the subject. President J. H. Morgan was good enough to respond as follows:

Your letter of September 29th in re Economics in Dickinson College has given me much trouble, and yet I want to thank you for the trouble you gave me, as it has developed something of considerable interest to me.

I took it almost for granted that no Economics has been taught here so early as you suggested. However, I have recently come into possession of the trustee minutes of that date, and I put them and our Alumni Record side by side and have found some things of interest. Henry Vethake from 1821-29 was a professor in Dickinson College, mathematics and natural philosophy apparently being his major interest—though he published "Political Economy" articles in the Encyclopedia Americana. So much came from the Alumni Record. The trustee minutes showed nothing on the subject at the time of his election nor for several years after; but in 1826 an action of the Board of Trustees permitted certain theological students being trained in Carlisle to attend lectures *inter alia* in "poltical economy." In November of the same year is this minute in the trustee book: "Resolved, that to the professorship of Mr. Henry Vethake be added that in political economy, 'which was agreed to.' The above seems to me to show that Henry Vethake, professor of mathematics and science, had interest in political economy and probably gave lectures in it prior to its being formally added to the style and title of his professorship in Dickinson College.

You ask how long the subject was taught in the College, and I should expect that it closed with Professor Vethake's departure in 1829. The College for a time went into eclipse, but was reopened four years later and has continued its work ever since.

I shall be grateful to you if you will let me know where you saw it stated that Mr. Vethake lectured on political economy here in the College.

It appears from the above letter that Vethake became professor of Political Economy *inter alia* in 1826, so that Dickinson College has the distinction of having founded a chair in Political Economy only a year or two after Dr. Cooper's chair was instituted at South Carolina College. In view of Vethake's own statement, it is also beyond question that the subject was taught at Dickinson College in 1822, three years before Dr. Cooper had begun to lecture.

As was stated above, when Vethake left Dickinson in 1829 he returned to Princeton and was Professor of Natural Philosophy from 1830 to 1832. During this period he continued the instruction in Political Economy begun at Dickinson. There is in our library *An Introductory Lecture on Political Economy delivered at Nassau Hall, January 31, 1831, by Professor Vethake, pub-*

lished at the request of the Senior class, bearing the imprint "Princeton." This led us to wonder whether he had not treated the subject during his first incumbency at Princeton. Through the kindness of Professor Collins, the secretary of Princeton University, we have been able to ascertain that the title of Vethake's chair at Princeton, between 1817 and 1821, was Mathematics and Natural Philosophy, but that he began to teach Political Economy to the Seniors in 1819. When he resigned, Political Economy was continued as a senior subject in the first term; and inasmuch as the senior class was taught by the President, Ashbel Green, the latter without any question taught the subject in 1822. In that year, however, Mr. Green resigned the presidency, and Political Economy is not again included in the curriculum until Vethake returned.

It appears, therefore, that four years prior to the introduction of Political Economy at South Carolina, the subject was taught at Dickinson; and that three years prior to its introduction at Dickinson College, and one year before its certain introduction at Harvard, it was taught at Princeton. It is probable, however, that the instruction at Princeton was exceedingly elementary, and that the more developed lectures of Vethake were not begun, as he himself tells us, until he took up the topic in 1822 at Dickinson.

What happened to Vethake's courses after he reached the University of Pennsylvania is uncertain. According to the catalogues of that University, it seems that Political Economy was not taught until the year 1855, when the subject was assigned to Dr. Vethake, as professor of Intellectual and Moral Philosophy. In addition to his lectures on Political Economy, Vethake at that time gave instruction in "Intellectual Philosophy, Ethics, the Evidences of Natural and Revealed Religion, Logic, the Elements of Natural, International, and Constitutional Law, and History, in connection with Chronology and Political Geography." In other words, it might be said that Vethake occupied not a chair, but a settee. It is difficult to believe, however, that a scholar who was so much interested in Political Economy and who continued to write profusely on the subject, should not have turned the attention of his students to that topic. A new edition of his *Political Economy* was published in 1844; he wrote most of the articles in volume XIV of the

Encyclopedia Americana, 1847, including several on economic topics, and he published on various occasions addresses on Political Economy. At the University of Pennsylvania, after the retirement of Vethake from the Provostship, the course on Political Economy was given by the Professor of English. In 1869 Political Economy was replaced in the University by Social Science, doubtless under the influence of Carey, and in the following year the Reverend Robert Ellis Thompson was appointed assistant professor of Social Science in 1874, the title of the chair being changed in 1875 to Social Science and National Economy.

We have seen that Dr. Cooper was ignorant of the fact that Political Economy was being taught at William and Mary, Harvard, Princeton or Dickinson. But his greatest error consisted in overlooking the fact that not only was Political Economy being taught at Columbia College, but that a chair of that subject had been founded at Columbia long before he made his application to his own trustees. This oversight on the part of Dr. Cooper is all the more remarkable because, in the preface of the very work in which he characterized his recommendation as a "new proposition," he refers to the use which he had made of McVickar's book, on the title page of which the latter is described as "Professor of Moral Philosophy and Political Economy at Columbia College, New York."

John McVickar graduated from Columbia in 1804. A few years thereafter he took orders and when Dr. Bowden, who had been since 1801 professor of Moral Philosophy, Rhetoric, Belles Lettres and Logic, died, he was elected to fill the chair.

Although McVickar was a clergyman, he had from an early period interested himself in the study of economics. In 1825 he published his *Outlines of Political Economy.* This was a reprint of McCulloch's article in the *Encyclopedia Britannica,* but with additions described on the title page as "Notes Explanatory and Critical and A Summary of the Science." In 1826 he edited McCulloch's Encyclopedia article as *Interest made Equity.* His chief contribution is found in an anonymous pamphlet of 43 pages entitled *Hints on Banking, in a Letter to a Gentleman in Albany by a New Yorker.* This was published in 1827 and is dated on the last page as being written from Columbia College. In this McVickar develops the idea that banking ought to be a

free trade and not, as was the case at that time in New York, the result of a special charter of incorporation in each instance. He suggested further that nine-tenths of the banking capital should be invested in government stock, to be held as a pledge of the redemption of the outstanding circulation. McVickar, therefore, really deserves credit for the introduction of the free banking system of New York, nine years later, which soon spread to other states.[1] Inasmuch as the essence of McVickar's suggestion also formed one of the fundamental principles of the national banking system which existed prior to the inception of the Federal Reserve system, McVickar may be declared in a certain sense to be at least a joint author of the national banking system which governed this country for over half a century.

In 1830 McVickar published a *Lecture Introductory to a Course on Political Economy recently delivered at Columbia College*, republished in London in the same year. This was followed in 1835 by *First Lessons in Political Economy for the Use of Primary and Common Schools*, in which he describes himself as Professor of Political Economy in Columbia College. Finally, in 1841, McVickar issued *A Tract on a National Bank* in which he upheld the need of a central bank. It is interesting to learn that McVickar and Cooper were both opposed to the destruction by Jackson of the Bank of the United States.

Whether Political Economy was taught at Columbia in the opening years of the century by the incumbent of the chair of Moral Philosophy, cannot now be ascertained, although it is by no means improbable. Nor do we know whether McVickar taught the subject during the first year of his incumbency. What we do know, however, is that in the next year, 1818, he persuaded the trustees of Columbia to add the subject of Political Economy to the title of his chair, which was thereafter known as that of Moral Philosophy and Political Economy. It is thus the earliest chair of the subject in the country.

McVickar continued to teach at Columbia until 1857, when he was transferred to the chair of the Evidences of Natural and Revealed Religion, occupying this until his retirement in 1864. We are told that "his learning was extensive and accurate, and

[1] When we called the attention of Mr. Horace White to this fact many years ago he inserted into a later edition of his *Money and Banking*, p. 348, a statement giving Professor McVickar credit for this idea.

his character was such as to inspire respect and veneration and to endear him to all who knew him." [1] He died in 1868.

The reason that McVickar abandoned the teaching of Political Economy at the time was no doubt the fact that in that year there was created at Columbia a new chair of History and Political Science, to which the distinguished scholar Francis Lieber was called. Lieber continued to teach political economy in addition to his famous lectures on history, political philosophy, and comparative jurisprudence. When he died, in 1872, political economy was assigned for a few years to Professor Nairne, the accomplished Professor of Philosophy and English Literature. In 1876 Professor John W. Burgess was called to the new chair of History, Political Science and International Law, and a year or two later Richmond Mayo-Smith was called to Columbia and to him was transferred the teaching of political economy, a separate professorship for that purpose being created in 1881.

In the other American colleges political economy was introduced at almost the same time. In 1825, the same year when Dr. Cooper began his lectures, the subject is found in both Yale and Rutgers.

At Yale it appears as a part of the regular curriculum for seniors in 1825. Whether the subject was previously taught at Yale is uncertain. We know that President Timothy Dwight had charge of the course in Moral Philosophy before 1825, and we are told that he dealt with the "more important disputable points in Science, Politics, Morals, and Theology." [2] As to how far Economics was included under the head of Politics is not quite clear.

The probability that Mr. Dwight touched on economic topics is evident from the list of published questions that he discussed with the Senior class in Yale College in 1813 and 1814. Among the questions decided are the following:

Dispute II—Ought Foreign Immigration to be encouraged?
Dispute IX—Ought the Poor to be supported by Law?
Dispute XX—Is a Savage State preferable to a Civilized?

[1] *A History of Columbia University, 1754-1904.* New York, 1904, p. 142. Further details of his life may be found in William A. McVickar, *The Life of the Reverend John McVickar,* New York, 1872.

[2] *Timothy Dwight's Theology Explained and Defended, with a Memoir on the Life of the Author,* 7th ed. New York, 1830, i-47.

Dispute XXXIV—Ought Manufactures to be encouraged in the United States?

Dispute XXXVI—Ought the Interest of Money to be regulated by Law?

Dispute XXXIX—Is man advancing to a state of Perfectibility? [1]

In the discussion of these questions we find mention of Adam Smith as well as of other writers on economic topics.

If an inference from these facts is permissible, it would seem that Economics was taught at Yale even earlier than in any other Northern institution. As to what happened between 1814 and 1825, we are not in a position to decide; but in that year it appeared, as stated, as a part of the regular curriculum.

According to the catalogue of 1827, as we have been informed through the kindness of Professor Clive Day, the *Political Economy* of Say was used as the basis of instruction, and it was not until 1837 that the work of Wayland was substituted. As to who gave the instruction during this period, is uncertain. It is to be presumed that a little later, at least, the subject was taught by Professor Woolsey. In Dr. Day's opinion, Daniel C. Gilman, who had been serving as librarian and who was made Professor of Physical and Political Geography in 1863, may have crossed the border line between these subjects and Political Economy. So far as it now appears, however, the first regular appointment to a Professorship of Political and Social Science was that of Reverend William G. Sumner in 1872. In 1874 Francis A. Walker appears for the first time as Professor of Political Economy and History; and on his departure economics was transferred to Sumner, who taught the subject to the seniors four times a week in 1876, although the term political economy was not included in the title of his chair.

At Rutgers, as President Demarest was good enough to inform us after an inspection of the records, political economy appears for the first time in 1825 as a subject of study, although the topic is not included in the title of the chair until a few years later. Dr. J. J. Janeway, a graduate of Columbia, became vice-president of Rutgers and Professor of Belles Lettres, Evidences of Chris-

[1] *President Dwight's Decisions of Questions discussed by the Senior Class in Yale College, in 1813 and 1814,* from Stenographic Notes, by Theodore Dwight, June, New York, 1833, 348 pp.

tianity, and Political Economy, in 1833. When he retired in 1839, his place was taken by President A. Bruyn Hasbrouck, who was made Professor of Constitutional and International Law, Political Economy, Rhetoric, and Belles Lettres. In 1844, however, the title was reduced to Professor of Constitutional Law; and the term Political Economy does not reappear until 1867, when Mr. J. P. Bradley was made Lecturer in Political Economy and Constitutional Law. In the interval, it is possible, although not certain, that the subject was taught by the Honorable Theodore Frelinghuysen, who was president and professor of international and constitutional law and moral philosophy from 1850 to 1862. Finally, in 1869 George W. Atherton became "professor of history, political economy and constitutional law."

In the University of Virginia political economy was first taught in 1826, although its introduction had frequently been discussed earlier. Jefferson had always taken a warm interest in the subject. When Dupont de Nemours sent Jefferson his project of a national university at Washington, the consummation of which was prevented by the political and fiscal troubles that culminated in the war with England, one of the four schools planned was that of Social Science and Legislation. When Jefferson, in 1817, worked out his ideas for the institution, soon to become the University of Virginia, he included in the course of instruction, at the suggestion of Cooper, the subject of political economy. Provision was actually made for a chair of ideology, a term doubtless borrowed from a work bearing that title by Count Destutt de Tracy, an old friend of Jefferson who had written as far back as 1798, at the latter's request, the *Commentaries on Montesquieu.* The first part of the *Eléments d'Idéologie* appeared in 1804, reprinted in 1823 without change as a *Traité d'Économie Politique.* In 1817 there was published at Georgetown, D. C., *A Treatise on Political Economy to which is prefixed a Supplement to a Preceding Work on the Understanding or Elements of Ideology,* by Count Destutt Tracy, translated from the unpublished French original. In a prefatory letter, Jefferson states that he has carefully revised and corrected the translation. He recommends the work which "by diffusing sound principles of Political Economy will protect the public industry from the parasite institutions now consuming it"; and in the accompanying prospectus, probably written also by Jefferson, he gives the most

enthusiastic praise to its "cogency of logic, rigorous enchainment of ideas, fearless pursuit of truth and a diction so correct that not a word can be changed but for the worse."

The chair of ideology was to be filled by Dr. Cooper. Jefferson wrote of him at the time—in 1818—"The best pieces on political economy which have been written in this country were by Cooper." [1] His chair was, however, entitled that of Chemistry, Mineralogy, Natural Philosophy and Law. But before he could commence his instruction, a storm of opposition to his liberal religious views developed and he handed in his resignation.

Nothing further seems to have been done until 1824, when the Board of Visitors of the University, in adopting a new scheme of studies, suggested not only moral philosophy but also "law, including the principles of government and political science." These suggestions were adopted with some minor changes, and in the same year Mr. George Tucker was made professor of moral philosophy, including ethics and metaphysics; and the subject of political economy was expressly assigned to him. In 1837 Tucker published his well known treatise on *The Laws of Wages, Profits and Rent Investigated.* On the title page he describes himself as Professor of Moral Philosophy and Political Economy in the University of Virginia, and in the preface he tells us that the doctrines maintained in the book "constitute part of a series of lectures which the author delivered in the University of Virginia for the last ten years." Tucker was succeeded in 1845 by Dr. W. H. McGuffey, whose course is described in the university catalogue of 1849-50 as comprising political economy, statistics and the philosophy of social relations or "ethics of society."

In the two succeeding years, political economy was introduced in no less than four institutions. In 1827 Union College permitted the juniors to choose that subject as an alternative to conic sections, and in the following year, political economy was made a required subject. After 1831 it was taught by Alonzo Potter, who was Professor of Rhetoric and Moral Philosophy from 1831 to 1847, and who published his *Political Economy* in 1840. In his previous chair of Mathematics and Natural Philosophy, 1819-1822, as we are informed by the kindness of the secretary of the Graduate Council, he seems not to

[1] P. A. Bruce, *History of the University of Virginia,* vol. i (1920), p. 196.

have taught political economy. At Brown University, Francis G. Wayland was elected to the presidency in 1827, and in the following year began the teaching of political economy. At the same time—1828—the subject was introduced into the curriculum of Dartmouth College in the North, and in the College of Charleston in the South.

It was not until the following decade that the subject was introduced in the smaller New England colleges. At Amherst, as we are informed as the result of an investigation by the president, Hon. Samuel Clessen Allen was made lecturer in political economy in 1832. He was followed in 1835 by Hon. William Barron Calhoun, who retained the position until 1850. From 1860 to 1869 the lectureship was occupied by Amasa Walker, one of the leading authorities of the day.

At Williams College, according to information kindly placed at our disposal by acting President Maxey, the Reverend Joseph Olden was made professor of Rhetoric and Political Economy in 1836. His successor was Arthur L. Perry, later to become one of the most prominent teachers of the subject. In 1854 he was made Professor of History, Political Economy and German, continuing under this title until 1871, when he became Orrin Sage Professor of History and Political Economy. In 1891 Mr. Perry retired as Emeritus Professor and was replaced by John Bascom, who had been lecturer on sociology since 1887.

The earliest attempt to introduce what we now call Business Economics was made in the next decade in the South. Through the generosity of some citizens of New Orleans a fund was collected in 1848 for a chair of Commerce, Political Economy and Statistics in the University of Louisiana, which was filled in the following year by De Bow, the editor of the well known *Commercial Review of the South and Southwest*. De Bow had, in fact, begun to lecture on the topic three years earlier. In 1853, however, he was appointed Superintendent of the Census, and instruction in the subject probably came to an end. In fact, the College of Liberal Arts, in which the lectures took place, closed its doors in 1855.[1] In the meantime it is to be noted that a professorship of Public Economy was instituted at Trinity College, in Connecticut, and was filled by Calvin Colton, the well known protectionist writer.

[1] Wills, *op. cit.*, p. 143.

4. *Conclusion*

The conclusions from the foregoing investigations seem to be fairly definite. The earliest course in any American college dealing with Political Economy as a science can be traced to the year 1801, when it was given at William and Mary College. It is probable, though not certain, that the subject was taught there a few years earlier and it is barely possible that such instruction may have existed from 1784 on.

Many, if not most, of the topics now included in the term Political Economy were taught at Columbia College for several years before its definite appearance at William and Mary. Although the professorship of Economics at Columbia, which dates from 1792, was really a chair of Economic Botany, the general topics of Trade, Commerce, Industry, and Agriculture were treated in both their historical and their practical aspects after 1784 and were probably included in the teaching of Moral Philosophy in Kings College after 1763.

In the next place, so far as the first chair of Political Economy is concerned, we must distinguish between the title and the subject matter. As to the subject matter, there is no doubt that it was taught in 1815 at William and Mary; and there is every reason to believe that it was so taught from the beginning of the century as part of Moral Philosophy, reaching the dignity of an independent course in 1826. The subject was first introduced at Harvard in 1820 (although possibly taught after 1817) as a part of Moral Philosophy; it did not become an independent course until 1841. So far as the title is concerned, however, it is certain that the term Political Economy is found for the first time in 1818 at Columbia College, when McVickar was made Professor of Moral Philosophy and Political Economy; and that the second chair was that of Dr. Cooper at the College of South Carolina, in Columbia, South Carolina, when he was made Professor of Chemistry and Political Economy in 1824. In the meantime, both the title and the subject are found in the curriculum of Princeton College and of Dickinson College—at Princeton from 1819; at Dickinson in 1822, although the term was not included in the title of the chair at Princeton, and is found at Dickinson only in 1826. In the interval it is first found in New England in 1824 at Bowdoin College. At Yale and at Rutgers the subject was introduced in 1825, but not as an independent course, and

Economics may have been touched upon in Yale as early as 1813. To John McVickar, of Columbia, may, therefore, be ascribed the distinction of occupying the first professorship of Political Economy in any American institution; and it was as a result of these facts being brought at the time to the attention of the Trustees of Columbia University, that the chair now filled by the present writer was named the McVickar Professorship of Political Economy.

We see, therefore, that the teaching of Political Economy in the United States may be divided into three stages. In the first, which comprised the eighteenth century and lasted until the war with England, political economy was a more or less exotic science, included under the general subject of moral philosophy, as had been customary in England. The industrial revolution which was initiated during the decade subsequent to the war with England, and which brought in its train the practical problems of banking and protection, was responsible for the interest taken in economic topics, and for the introduction of political economy as a regular part of the curriculum in a large number of institutions between 1818 and 1828. Independent chairs of political economy did not, however, become common until the third period, which began in the seventies, with the appearance of serious economic problems like the labor question, the railroad question, the silver question and the other indications of mature development. This third period, beginning with the activity of Dunbar at Harvard in 1871, and of Walker at Yale in 1874 as well as at Johns Hopkins in 1876, marks the widespread creation of independent chairs of Political Economy in all the leading American institutions. The teaching of Political Economy in other words reflects, here as elsewhere, the emergence of the important economic problems in actual political life.

A FUNCTIONAL THEORY OF ECONOMIC PROFIT

Charles A. Tuttle

Current explanations of profit as the income which the employer actually draws from business have been formulated without reference to any distinctive function which he performs. Their logical inconsistency in a theory of distribution which posits function as the basis of personal incomes from the product of socialized industry is obvious. The distinctive function among the varied relations which the employer sustains to business is the ownership of the business, viewed as an organized unit. This function the writer [1] denominates the function of the entrepreneur. It involves no labor, no capital-owning, and no ownership of land or other durable production goods. The personal income which attaches to this function is economic profit.

Economic profit is therefore viewed as a distinctive income which attaches to a distinctive function. Unit organization, in which a portion of land, a portion of capital, and a portion of labor are placed in effective relationship to each other in a given business, is viewed as a distinctive factor of production, coordinate with land, capital and labor; and its ownership is viewed, accordingly, as a distinctive function coordinate with those of the landowner, the capitalist and the laborer. The product of socialized industry is therefore viewed as the joint result of four functions, and it is the problem of distribution to analyze this joint product into four functional shares which constitute the personal incomes of those who perform them. The immediate problem, therefore, which the writer of this paper sets himself, is to formulate a coordinate theory of economic profit as the functional share of the entrepreneur.

The principle of diminishing returns which the classical economists discovered in connection with land, enabled them to differentiate the product of land from that of the other factors.

[1] "The Function of the Entrepreneur," *American Economic Review,* Vol. XVII, pp. 13-25.

It remained for Professor John Bates Clark to recognize this principle as "a universal law of economic variation," and to discover that the theory of rent is based on a "partial application of a comprehensive principle." In his hands a fuller application of the principle to production affords a comprehensive principle of distribution,—the marginal productivity principle. The principle, which enabled the classical economists to determine economic rent as a differential, is used by Professor Clark to determine the specific contributions of labor and of capital, and to formulate economic laws which determine directly the functional shares of the capitalist and of the laborer.

The entrepreneur's share, on the other hand, is commonly described as a "residuum"—what is left—and it belongs to the entrepreneur as residuary legatee simply because "it is left." It is given a distinctive name, profit, but it is ascribed to no distinctive function which the entrepreneur, and he alone, performs. The universal expectation on the part of those who assume the rôle of entrepreneur that there will be something left, after the other claimants have received their shares, would seemingly indicate one of three things: either, *first*, that the organized business unit as such is in itself a productive factor, and therefore justifies the entrepreneur's expectation of income, or *second*, that the assumption of the entrepreneur function places the business man in a strategic position which enables him "as universal paymaster" to exact a toll from the shares of the other claimants, and possibly from the consuming public, or *finally*, that the entrepreneur function involves both of the above-mentioned possibilities.

The logical inconsistency of the profit-residual theory has been noted by Professor Hollander, who at the close of an able and suggestive historical and critical review of *The Residual Claimant Theory of Distribution*, says significantly:[1]

> It thus appears that one last step remains to be taken before economic theory will have completed a full cycle in its development. Landlord, capitalist, laborer, and entrepreneur have each in turn been elevated to the position of residuary legatee; and landlord, capitalist, and laborer have in turn been reduced to the status of coordinate claimant. The entrepreneur is now in possession. But, if the progress of economic thought affords any instruction, surely the conjecture may

[1] "The Residual Claimant Theory of Distribution," *Quarterly Journal of Economics*, Vol. XVII, p. 279.

be hazarded that his tenure is limited, and that the theory of profit will eventually be coordinated with the general principle of distribution to which it now forms a nominal but illogical exception.

It may be added that the task which the writer of this paper has set himself is to present a functional theory of profit which shall coordinate with the marginal productivity principle of distribution.

It frequently occurs, in the current literature of the theory of distribution, that the writer, apparently without being conscious of it, shifts his point of view when he turns to take up the subject of economic profit. The shares of the landlord, the laborer, and the capitalist have been treated, perhaps, theoretically as economic shares, determined by a single principle, rather than practically as contract shares determined by bargaining with the employer; when, however, the consideration of the entrepreneur's share is reached, the theoretical standpoint is unconsciously abandoned for the practical. The result is not a functional theory of economic profit, coordinating with the functional theories of economic rent, wages, and interest, but, rather, an explanation of the nature and sources of the employer's income under actual conditions. This income is represented as practically determined, at least partially, in a negative way by skillful bargaining with the landlord, the capitalist, and the laborer.

Professor Carver's treatment of profit, in his work on *The Distribution of Wealth,* affords an illustration in point. The laws of economic rent, wages, and interest are based by Professor Carver upon the principle of marginal productivity,—"a part of the general law of diminishing returns." [1] This principle theoretically determines the marginal products respectively of land, of labor, and of capital, and, accordingly, eliminates "profits altogether by including all incomes under the other three heads." [2] "But," continues Professor Carver, now abandoning the theoretical for the practical point of view, "this would not be quite true for several reasons." His explanation follows: [3]

> In the first place, the actual amounts which the business man pays for the hire of these agents of production are only approximately equal to their marginal products, and the closeness of that approxi-

[1] *The Distribution of Wealth,* p. 220.
[2] *Ibid.,* p. 259.
[3] *Ibid.,* pp. 259-262.

> mation varies. He will not knowingly pay more than that, because to do so would involve a loss. Of course the owners of the factors of production will not knowingly take less than their marginal products, because that is what they are really worth, and that is what they can get if they are persistent and skillful in bargaining. But it is never known precisely what their marginal products are at any given time. Under stable conditions of industry, experience would determine that point with a fair degree of precision, and employers would bid against one another for any factor which could be had for less than its marginal product until they would bring up its price. . . . But conditions in the business world are never quite stable, and under unstable conditions it is more difficult to tell in advance what the marginal product of any factor will be. In general the business man is more careful to avoid losing that which he already has than to gain something in addition. Consequently he will be pretty sure to keep on the safe side when making an offer to the laborer, the landlord, or the capitalist. Moreover, he is in a better position to know what their factors are approximately worth than the other men are. The result is that the factors of production are more frequently employed at a price slightly under than over their marginal productivity. . . . In the last analysis, the profits of the superior bargaining of business men, as a class, come out of the wages, rent, or interest, of the labor, land, or capital which they hire. What one business man gains off another adds nothing to the general share of profits; but in so far as he outbargains the laborer, the landlord, or the capitalist, he does add something to the general share of the business men's profits by taking something from the shares of the other factors.

The conclusion to which Professor Carver finally comes is "that profits include only what is left after the other shares are paid"; that "in a very concrete sense the profits of a given business man are what he has left after paying all his expenses and allowing himself wages for his own labor; such wages as he could command in the market if he were to offer to work for someone else, besides interest on his own capital and rent on his own land; such interest and rent as these factors would bring in the market."

This somewhat extended quotation serves to substantiate the writer's contention that Professor Carver's explanation of profit is not in harmony with his general principle of distribution. Economic distribution, it should be observed, is theoretical; in it bargaining and contract have no place. It calls for a theory of economic profit which shall coordinate with those of the other shares. Contract distribution, on the other hand, is *practical*, and all the shares are practically, as Professor Carver rightly observes, "the immediate result of bargaining." Economic distri-

bution operates according to a natural economic law, and is, therefore, true distribution; while bargaining and contract, on the other hand, are the practical mode of effecting distribution in the work-a-day world. Economic distribution, therefore, sets the standards; while the ethical quality of contract distribution can be determined only by comparison with these standards. The profit-residual theory has no place in economic distribution; while in contract distribution the actual income of the business man has all the appearance of a residuum,—the immediate result of superior bargaining.

Professor Carver enumerates the "several sets of circumstances which enable the business man to bargain so as to have a surplus left after paying for the other factors of production" as follows:[1]

> The first is his superior knowledge of the actual conditions of the market and of the inside workings of his business which enables him to tell better than the members of any other class what the marginal productivity of the various factors really is at any one time. The second is the deception which is frequently practised in order to outbargain the consumer; the third is the method of terrorism;[2] the fourth is the uncertainty and risk normally attending an independent business which makes the average man willing to accept a stipulated sum as wages, rent, or interest, even when that sum is slightly less than he might be expected in the long run to earn. And finally, there is the business man's superior ability in guessing on the probable fluctuations of the market, which enables him to reduce his risk slightly below that which others less skillful in this respect would have to face.

It would accordingly appear that Professor Carver, finding no legitimate place for economic profit under the "marginal productivity principle" of distribution, ascribes the employer's actual income to superior bargaining, deception, and exploitation, which superior knowledge, and possibly a low moral sense, make possible under unstable conditions of industry, and finally to superior ability in assuming risks.

It is significant that in Professor Clark's profit-residual theory bargaining, deception, and exploitation find no place. It is, rather, Professor Clark's avowed aim to show the fallacy of the socialist indictment "that workmen are regularly robbed of what

[1] *The Distribution of Wealth*, p. 286.

[2] Professor Carver here refers to "various underhanded and unscrupulous methods of driving competitors out," which were "uniformly adopted by trusts" and constituted "the chief purpose of their organization."

they produce," and "that this is done within the forms of law, and by the natural working of competition." In the preface of his *Distribution of Wealth* he says:[1]

> It is the purpose of this work to show that the distribution of the income of society is controlled by a natural law, and that this law, if it worked without friction, would give to every agent of production the amount of wealth which that agent creates.

Yet the residuary principle as applied by Professor Clark in determining the entrepreneur's share is by no means in harmony with his general principle of distribution,—the marginal productivity principle; but it appears to be, rather, in Professor Hollander's phrase, "a nominal but illogical exception to it." This will appear upon a critical examination of Professor Clark's theory.

Distribution, as Professor Clark conceives it, is "primarily functional rather than personal." Accordingly, a person's income from socialized industry "depends on the incomes attaching to the functions he performs." A separation of economic functions, therefore, is regarded as essential in the analysis of distribution; and a separate study of each of the functions and of the income attaching to it is represented as important, and not the less so because of the fact "that one man usually performs more than one of them."

It may be noted here that Professor Clark recognizes but three distinctive economic functions. His triad of functions comprises that of the laborer, that of the capitalist, and the function of the entrepreneur. The function of landownership, which the classical economists had differentiated from that of capitalist, appears to be merged in the latter function; while the entrepreneur-function is differentiated from that of the capitalist with which the classical economists had confounded it. Had Professor Clark clearly differentiated capital as a fund of productive wealth, expressible in terms of money, from the production goods ("capital goods") in which capital is invested, he must have agreed with the writer of this paper, that the ownership of durable production goods, of which land is typical, constitutes a distinctive economic function which entitles the one who performs it to a distinctive functional share,—economic rent. In his view,

[1] *The Distribution of Wealth,* 1899, Preface, p. v.

however, economic rent,—the product of supra-marginal instruments,—and economic interest,—the marginal product of capital,—are but different names for the same functional share. It is economic rent, if viewed from the standpoint of "capital goods," and economic interest, if viewed from the standpoint of capital and conceived as a percentage upon a value-fund expressed in terms of money. To the writer this assumption of Professor Clark is not in keeping with the distinctions made in practical life, and befogs, at once, both his conception of the capitalist function and that of the entrepreneur, and seemingly renders it impossible to treat economic profit as a distinct functional share, determined by the general principle of marginal productivity.

To be more specific, natural economic law operates, in Professor Clark's view, to cause [1] "the whole annual gains of society to distribute themselves into three great sums—general wages, general interest and aggregate profits," which are, respectively, the earnings of labor, of capital and the entrepreneur's function. He proposes to prove the general thesis, that, *"where natural laws have their way, the share of income that attaches to any productive function is gauged by the actual product of it.* In other words, free competition tends to give to labor what labor creates, to capitalists what capital creates, and to *entrepreneurs* what the coordinating function creates." [2]

Further, according to Professor Clark:[3]

> Wages and interest are incomes that may be treated as static in their nature: they would exist if society were to remain in an unprogressive state, with its forces in a certain balanced condition that excludes external changes. Disturb this equilibrium of forces, make structural changes in society, create a condition in which labor and capital begin to move from one point in the general system to another, and you furnish opportunities for the creating of another income that is distinctively dynamic. We shall call this *pure profit.*[4] It is a product of unbalanced forces, and exists, under natural law, only while society is changing. Eliminate those internal movements of the industrial forces that we have indicated, and you destroy it. The remaining product of social industry will then resolve itself into wages and interest.

[1] *The Distribution of Wealth,* p. 2.
[2] *Ibid.,* p. 3.
[3] "Distribution as Determined by a Law of Rent," *Quarterly Journal of Economics,* Vol. V, p. 289.
[4] The italics are the writer's.

Professor Clark's method of attaining a law of distribution is "not, therefore, first to eliminate from the earnings of society the element of ground rent, and then to try to find principles that will account for the remaining elements: it is to eliminate what is not rent,—namely, pure profit,—by reducing society to a static condition, and then, by a use of the rent law, to account for all that remains." Thus, Professor Clark makes it evident that he recognizes, in static industry, only two productive factors,—namely, labor and capital,—and only two shares in distribution,—namely, wages and interest. The prices that prevail are represented as cost prices, and, to quote:[1]

> Cost prices are of course no-profit prices. They afford, in the case of each article, enough to pay wages for the labor and interest on the capital that are used in making it; but they give no net surplus to the entrepreneur, as such.

The evidence, then, appears to be conclusive that profit, according to Professor Clark's analysis, is not determined by his general principle of distribution,—the marginal productivity principle. The operation of that principle, as he seemingly views it, leaves the entrepreneur, as such, shareless, by ascribing the entire product of socialized industry, under static conditions, to labor and capital. Profit appears to owe its origin to dynamic changes and the slow functioning of competition. It seemingly constitutes a residuum which the entrepreneur finds in his possession only because the law of distribution, operating under dynamic conditions, does not ascribe it to labor and capital. Even then, it is "a vanishing sum," as static standards tend to reëstablish themselves under the influence of competition. As Professor Clark expresses it:[2]

> Pure profit will always be found, at numerous points, though at no one of them will it prove permanent. If we continue to watch a particular industry, we shall see pure profit appearing as the result of a disturbing influence, and then slowly vanishing, as competition reasserts its control.

If, however, the factor which the entrepreneur, as such, distinctively owns is essential to the socialized productive process, there would appear to be logical ground for the expectation,

[1] *The Distribution of Wealth*, pp. 78-79.
[2] Clark and Giddings, *The Modern Distributive Process*, 1888, pp. 45-46.

that the reduction of society to a static condition would be, at least, as powerless to eliminate profit as it evidently is to eliminate wages, interest, and rent. Dynamic changes would naturally affect all of the functional shares in distribution.

We are now ready to take up the problem of a functional theory of economic profit, which shall coordinate with the functional theories of the other shares, as determined by one general law of distribution,—the marginal productivity principle.

In the analysis of the problem, it is important to keep clearly in mind that man, on the one side, and nature, on the other, are the primary economic factors. The economic struggle, today as always, is directed upon nature. Originally, an individualistic struggle between men and small portions of nature, it is now a highly organized one between mankind and the earth. The economic motive is the same today, as in the beginning,—namely, to wrest from a reluctant nature the means of satisfying human wants. It was the pressure of increasing population, and the developing nature of man as seen in his multiplying and diversifying wants, that made the results of a law of diminishing returns early manifest. The significance of capital, in making possible organization and a more effective use of human energy in the otherwise hopeless economic struggle, is thus revealed. Capital, accordingly, appears to be man's "master key" of progress in the struggle with nature.

When the classical economists directed attention to the natural tendency of population to outrun the means of subsistence, hostility to private property in land was beginning to manifest itself. Says Adam Smith: [1]

> As soon as the land of any country has all become private property, the landlords, like all other men, love to reap where they never sowed, and demand a rent even for its natural produce.

Men had to pay for the license to gather "the wood of the forest, the grass of the field, and all the natural fruits of the earth."

The discovery of a natural law of diminishing returns, therefore, was made in time to rescue private property in land. In the hands of the Ricardians, this law made it possible to differentiate the product of land from the product of labor and capital, and to prove that the landlord is not an exploiter of labor. Units of

[1] *Wealth of Nations,* Vol. I, Chap. VI.

labor and capital, employed upon land, receive, after the payment of rent, all that they produce at the margin of production, where the best of the free natural opportunities are still to be found. Further, the principle of diminishing returns serves to explain why the supra-marginal grades of land are scarce, and, therefore, no longer a free factor of production.

The principle of diminishing returns, as applied by the Ricardians to land, therefore, reveals land as offering, to organized units of labor and capital, three general grades of *natural* opportunities,—namely, supra-marginal, marginal, and infra-marginal. Only the supra-marginal opportunities are rent-opportunities. The product resulting, when organized units of labor and capital are applied to these, appears *naturally* divided into two parts. The owners of the organized units of labor and capital receive as much as these could produce, if applied to marginal opportunities, —the best free opportunities, still open to them,—and the landlord receives the differential (economic rent),—the economic product of the supra-marginal opportunities, which his land offers.

The Ricardian law of rent, accordingly, marks off only the functional share of the landlord. The marginal product of organized units of labor and capital remained still to be "disentangled," and the classical economists recognized no scientific principle in determining the functional shares of the capitalist, the laborer, and the entrepreneur.

In this connection, let us consider the different reactions to the Ricardian law of rent, revealed in the thought of two American economists. Henry George says of it:[1]

> Authority here coincides with common sense, and the accepted dictum of the current political economy has the self-evident character of a geometric axiom.

Mr. George accepts the law literally as applied to land, and regards the wealth produced in every community as [2]

> divided into two parts by what may be called the rent line, which is fixed by the margin of cultivation, or the return which labor and capital could obtain from such natural opportunities as are free to them without the payment of rent.

Accordingly, Mr. George, eliminating the enterpreneur on the

[1] *Progress and Poverty*, 1879, Book III, Chapter II.
[2] *Ibid.*, Book III, Chapter III.

ground of his performing no distinctive function, and merging capital with labor on the ground that capital is but a form of labor, views land and labor as the sole factors of production. He, therefore, regards the product of industry as divided by a natural law between the landlord and the laborer. To him the landlord, rather than the entrepreneur, appears as the beneficiary of material progress.

The other American economist, to whom reference is made, is Professor John Bates Clark. In the preface of his great work, *The Distribution of Wealth,* he expressly says:[1]

> It was the claim advanced by Mr. Henry George, that wages are fixed by the product which a man can create by tilling rentless land, that first led me to seek a method by which the product of labor everywhere may be disentangled from the product of cooperating agents and separately identified.

Our attention is called to the fact that Professor Clark, like Henry George, recognizes, in static industry, but two factors of production; but differs with him, first, in retaining the entrepreneur as residual claimant of the results of dynamic changes, which Mr. George allots to the landlord, and second, in merging land with capital, as one factor of production, and regarding labor as the other; while Mr. George, on the other hand, merges capital with labor, as one factor, and, as the other, emphasizes the distinctive character of land.

It is important, here, to note a further difference in the thought of these two economists. The Ricardian law of rent is regarded by Mr. George as of fundamental importance; while by Professor Clark it is viewed as "an obstacle to scientific progress," retarding "the attainment of a true theory of distribution." Mr. George's use of the principle of diminishing returns, although in accord with the classical employment of it, is regarded by Professor Clark as only a minor application of a general principle of diminishing productivity. He says of it:[2]

> The principle which has been made to govern the income derived from land actually governs those from capital and from labor. Interest as a whole is rent; and even wages as a whole are so. Both of these incomes are "differential gains," and are gauged in amount by the Ricardian formula.

[1] *The Distribution of Wealth,* 1889, Preface, p. viii.
[2] "Distribution as Determined by a Law of Rent," *Quarterly Journal of Economics,* Vol. V, p. 289.

On the assumption that there are in reality but *two* distinctive factors,—namely capital and labor,—and but *two* static incomes, —namely interest and wages,—Professor Clark employs the principle of marginal productivity to determine each of these incomes both *directly* and *differentially*. When labor is applied in successive units to a fixed amount of capital, the margin for labor determines directly the rate of wages and the differential is interest "as a whole." When, on the other hand, capital is applied in successive units to a fixed labor force, the margin for capital determines directly the rate of interest and the differential is wages "as a whole." While Mr. George, therefore, recognizes but a single margin, namely a natural one (connected with land) which determines *directly* both wages and interest and differentially the rent of land "as a whole"; Professor Clark, on the other hand, distinguishes two margins,—namely one for labor and another for capital. While with Mr. George, therefore, wages and interest must rise or fall together as rent falls or rises; with Professor Clark, wages may rise as interest falls and vice versa.

Although Professor Clark recognizes *in static industry* but *two* distinctive factors and but *two* distinctive functional shares, the analysis of the business unit by the present writer [1] distinguishes *four* such factors and *four* such shares. The Ricardian law of rent is here regarded, not as "an obstacle to scientific progress," but rather as the earliest application of a scientific principle which, as Professor Clark discovered and expressly says, is capable of affording a true theory of distribution. The writer believes that this principle, which has served to determine and separately identify as a differential the functional share of the landlord, is capable of rendering service likewise in determining the functional shares, respectively, of the laborer, the capitalist, and the entrepreneur.

It is clear, then, that the traditional application of the Ricardian principle, which determines as a differential the landowner's functional share "as a whole," also determines directly the joint product "as a whole" of the three remaining economic factors. This has been wrested *by organized effort* from the best natural opportunities which are still free (marginal opportunities). The

[1] "The Entrepreneur-Function in Economic Literature," *Journal of Political Economy*, Vol. XXXV (August, 1927, pp. 501-521); "The Function of the Entrepreneur," *American Economic Review*, Vol. XVII, pp. 13-25.

economic factors involved are owned respectively by the laborer, the capitalist, and the entrepreneur. Our immediate problem therefore is to "disentangle" this joint product into three functional shares, namely wages, interest and profit.

It should be noted, before proceeding with our analysis, that *organization,* which capital at first made a possibility, and finally a necessity, appears to be the dominant factor. So essential has organization become that labor and capital, if they are to have a part in socialized production at all, must find places in organized relationship to each other in some business unit. While these business units are organized and directed as going concerns by labor, they are *owned* by entrepreneurs. This becomes the central fact in our analysis; for it is the property right in the organization *as such* on which rests both the dominance of the entrepreneur in modern industry and his right to a distinctive functional share of the joint product.

The business unit may now be characterized as a complex of socialized economic opportunities for portions of capital and for portions of labor. These organization opportunities may be designated, for lack of a better term, as "artificial," in order to distinguish them from natural opportunities (those connected with land). These opportunities, whether for portions of labor or for portions of capital, are evidently *varied* in quality. Diversity in the quality of the organization opportunities in which separate "units of labor" and separate "units of capital" must be placed for effective team work is an attribute of the very nature of organization. There are "many members, but one body." This diversity of opportunity may be brought into clearer perspective by application of the principle of diminishing productivity.

At this point in our analysis it should be noted, for the sake of clearness, that the business unit, viewed as *a complex of economic opportunities,* comprises in static industry two distinct, though interrelated, groups of such opportunities. These may be designated respectively as the labor-group and the capital-group. "Units of labor" introduced into the business unit would be placed in opportunities for labor, and correspondingly "units of capital" into those for capital.

To proceed now with our analysis, if we assume, as does Professor Clark, that the capital at the disposal of the organizer of

the business unit is a fixed amount, and then introduce successively "units of labor," the principle of diminishing productivity would be seen in operation. The increment of product resulting from each succeeding unit in the procession would be a smaller one, and this would continue until the final unit of labor is placed. As Professor Clark says:[1]

> The law of final productivity applies to every mill, shop, or mine separately considered. If its capital remains fixed in amount, units of labor produce less and less as they become more numerous.

Here we get a glimpse of the varied quality of the opportunities for labor within the business unit, ranging all the way from the best, where the product is large, to the poorest, where the product is small, or conceivably vanishes altogether.

"In the static state that we have assumed, competition works without let or hindrance," [2] and accordingly the marginal opportunity for equal "units of labor" within the business unit becomes adjusted. It varies with the relative number of units to be placed. Whatever its quality, it is here that labor's product is free from admixture with other elements. The entire product is specifically labor's product. This is what determines the rate of wages. At the margin all labor is tested. Here lies the best free opportunity still open to labor, and likewise the poorest opportunity that any labor is compelled to accept. Labor here receives its entire product.

It becomes at once evident, if our analysis is correct, that the larger product resulting from "units of labor" placed in the limited number of supra-marginal labor opportunities within the business unit, is not entirely labor's contribution. It is clearly divided into two parts by the marginal principle. Equal "units of labor" are equally productive. Labor's product in all supra-marginal labor opportunities within the business unit is measured by what it can produce in a marginal opportunity. The differential is clearly to be attributed to the exceptional quality of the opportunity in which the labor is placed.

The logical conclusion follows. In view of the fact that all labor opportunities within the business unit are owned by the entrepreneur the differential clearly belongs to him and constitutes his functional share. It thus becomes an item in his functional income,—namely economic profit. The principle of

[1] *Essentials of Economic Theory*, 1907, p. 142.
[2] *Ibid.*, p. 143.

marginal productivity accordingly determines the laborer's share directly, and that of the entrepreneur differentially.

Let us now shift our point of view from that of labor to that of capital. If we assume that the labor at the disposal of the organizer of the business unit is a fixed quantity, and then introduce successively "units of capital," the principle of diminishing productivity will again manifest itself in the decreasing increments of product. Now we have a glimpse of the varied quality of the opportunities for "units of capital" within the business unit, ranging all the way from the best where the product is large to the poorest where the product is small, or conceivably vanishing altogether.

On the assumption of a static state, in which "competition works without let or hindrance," the marginal opportunity for "units of capital" emerges. It evidently varies with the relative number of units to be invested within the business unit. It is here that capital's product is free from admixture with other elements; the whole product is specificially capital's contribution to the joint product, and this determines the rate of interest. At the margin for capital the productivity of all "units of capital" is measured. Here is found the best free opportunity within the business unit for the investment of capital, and likewise the poorest opportunity that any "unit of capital" would have to accept. Capital here receives its whole product.

It is evident, if our analysis is correct, that the larger product resulting from "units of capital" invested in the limited number of supra-marginal opportunities for capital within the business unit is not wholly capital's product. Here again the principle of marginal productivity serves to differentiate the product into two parts. One of these is clearly the product of capital; while the other must be attributed to the exceptional quality of the investment opportunity in which the capital is placed.

The logical conclusion here also follows. In view of the fact that all the investment opportunities for capital within the business unit are owned, with the exception of one group next to be considered, by the entrepreneur, the differential belongs to him and constitutes his functional share. This differential also becomes an item in the entrepreneur's functional income,—namely economic profit. Accordingly the principle of marginal productivity determines the capitalist's share directly, and that of the entrepreneur differentially.

Attention is here called to the exception. The ownership of durable "artificial" production goods is not viewed by the writer [1] as an essential element in the function of the entrepreneur. The usance as distinguished from the ownership of such goods is alone necessary, and this can be secured like that of land by lease. The differential that the marginal productivity principle allots to the exceptional opportunities for capital which "artificial" instruments offer, belongs economically to the owner of the instruments. The differential in this case as clearly constitutes the functional income of the owner as does the differential of land constitute the functional income of the owner of land. The ownership of all durable production goods, of which land is typical, is regarded by the writer as a distinctive economic function, and the functional income attaching to it is economic rent.

By way of summary, it appears from our analysis that economic profit exists in static industry as the distinctive functional income of the entrepreneur. It seemingly comprises two distinct differential elements, namely, *first*, the product of the supra-marginal (exceptional) opportunities inherent in the nature of the business unit for the employment of equal "units of labor," and *second*, the product of supra-marginal (exceptional) opportunities inherent in the nature of the business unit for the productive use of equal "units of capital." The business unit is here characterized as a complex of opportunities of varied quality for equal "units of labor" and for equal "units of capital." To the entrepreneur as owner of the business unit these differential elements belong. They contain no admixture of wages or of interest, and therefore constitute the entrepreneur's functional share. It is the prize which lures men in static industry to assume the function of business ownership. The conclusion is reached that the law of marginal productivity, which was first applied by the Ricardians to separate as a differential the rent of land (here viewed as typical of the rent of all durable production goods) serves likewise to determine, *directly*, economic wages and economic interest, and at the same time to separately identify, *as a clear differential*, economic profit as the functional income of the entrepreneur.

[1] "The Function of the Entrepreneur," *American Economic Review*. Vol. XVII, pp. 17-18.

APPENDICES

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DINNER IN HONOR OF PROFESSOR JOHN BATES CLARK [1]

Professor Edwin R. A. Seligman, Chairman

Gentlemen, at this celebration we had intended to accomplish three things. We had intended to have eighty people present; we had intended to have a birthday cake with eighty candles; and we had intended to have eighty speeches. Unfortunately, the pressure to attend the dinner was such that we had slightly to overstep the limit of eighty people. In the next place, the pastry cook informed me that it would take six men to carry in a cake large enough for eighty candles, so we gave that up; and finally the gentlemen who are to speak tonight insisted that if their speeches were to be cut down to two minutes, they would refuse to proceed. So for all these reasons we had to abandon the magic figure of eighty. At all events, however, we do know that the figure is present in one case, in that of our beloved friend and guest who becomes an octogenarian today.

It is not often that that ripe old age is attained by individuals in the plenitude of their powers. I have noticed that longevity is more particularly true among scholars, and I have often wondered why that should be so. There are three reasons why, perhaps, it is true of the professorial class. In the first place, I should say that it is due to their poverty. Impecuniousness makes, of course, for plain living; and the fact that we have to live so plainly may perhaps tend to our longevity.

In the second place, I think that it is perhaps due to our holidays. We have the long summer off and we can indulge in all sorts of diversions that are not possible to the ordinary man. The more fun, the greater the chance of a long life. Finally, I think that it is due to the liberty we enjoy. Everybody in active life is more or less under obligations to some superior or some client or some customer. The university professor nowadays really enjoys more freedom, at all events in the private universities, than is accorded to any other member of the community. Of course, I know that this runs counter to common opinion. They will point, for instance, to the gentleman at my left and speak of him as a benevolent despot, and sometimes will even omit the word benevolent. I can assure you, on the contrary, that, far from being that, we all feel he is not a despot but a sympathetic colleague.

I remember as if it were yesterday when this octogenarian first came to Columbia. It has been my bad fortune to be the executive head of the department for these many years. I have a family of forty or fifty now; but in those days there were only two of us, Mayo-Smith and myself. When Professor Clark came, we felt that our strength, if not our numbers, was multiplied manyfold. If we have been able to keep ourselves a happy

[1] In celebration of Professor Clark's eightieth birthday, January 26, 1927, at the University Club, New York City.

family all these years, I think it is in a large measure due to the sweet temper, the calmness, the courtesy and the example of unselfishness which Professor Clark has always given us.

I remember one other episode when, a few years after he came to Columbia, he turned over to me for criticism the manuscript of his book. I recollect reading it on my way to New England where I was spending the holidays. I was so excited after reading it that I telegraphed or wrote to him saying: "You have earned your place among the six leading economists of the nineteenth century." That first impression made upon me by the perusal of the wonderful book has, of course, been abundantly strengthened, as we all know of the international reputation which Professor Clark speedily achieved.

It is unnecessary for me to say much more now because we shall hear, not from all of the eighty, but from a few of his well-wishers. When his friends bethought themselves of how they could most fittingly celebrate this anniversary, they finally decided upon three different plans. One was the accumulation through his admirers of a fund, which has enabled us to secure the fine portrait which you have seen in the other room, and of which a duplicate has been painted for the trustees of the Carnegie Foundation.

The second was the adoption of a very good, old continental custom. When a scholar reaches a ripe age, it is the custom in Germany, and in France, as well as in other countries, to prepare what they term a jubilee volume, but which we now might more suitably call simply a commemorative volume. This task has been undertaken under the auspices of the American Economic Association, by a former President of the American Economic Association and one of Professor Clark's own pupils, who is, I am happy to say, with us tonight. Professor Hollander of Johns Hopkins has almost ready for the press what we confidently hope will be a dignified and appropriate tribute to our beloved colleague.

The third plan of signalizing this anniversary was what you see here tonight, this tribute of esteem and of respect on the part of his colleagues and fellow citizens. This at one time gave us no little concern, because we knew that it would have been exceedingly easy to have, instead of eighty, eight hundred guests. We finally decided that this more intimate and, may I say, select assemblage, would be more agreeable to our friend; so here we are. In these three special ways his colleagues and his admirers have sought to show their appreciation of what he is and of what he has done.

Without detaining you longer, I shall now call upon the speakers, each of whom will approach the subject in a little different way. I shall first call upon our "benevolent despot," President Butler.

Dr. Nicholas Murray Butler

Mr. Chairman, Professor Clark, My Colleagues and Friends:

If I interpret correctly the look of seriousness on the face of my dear friend and colleague, the president of the Bank of the Manhattan Company,

he shares my regret at the loss of those eighty speeches. The fact that we are not going to have eighty speeches deprives this occasion of one of the characteristics of excellence to which I looked forward, my dear Chairman, with some anticipation. I was called upon a few weeks ago to take the chair at a dinner in this speech-stricken town, where I was handed a list of seventeen speakers and was assured that no one would speak more than two minutes. We discontinued the order of exercises at quarter of two in the morning, when a certain number of the seventeen had begged to be excused.

I can begin my tribute to my long-time friend and colleague, Professor Clark, by paying a tribute to one of his associates and mine, whom I hold in the deepest affection and esteem, as an old teacher, as an intellectual guide, as a personal friend, and as a colleague for a generation, whose letter I hold in my hand. Professor Burgess has written this letter with the suggestion that I read it to this company and Professor Clark:

Your letter of January 19, forwarded from Newport, reached me yesterday and found prompt and sympathetic response of my own feelings. I yield to no one among our colleagues in appreciation of Professor John Bates Clark, as a scholar and a gentleman. I have the honor to be an alumnus of the same college with him, to have joined as a member of the Board of Trustees of our Alma Mater in extending to him the invitation to the Chair of Political Economy in that Institution, and then as Dean of the Faculty of Political Science at Columbia, to have initiated his call to the Chair of Political Economy in this university.

For a quarter of a century I was almost daily witness to that rare and refined scholarship, that modest and courteous demeanor, that honest and conscientious dealing which have marked his distinguished career throughout its epoch and there is no man among those with whom he has lived and labored to whom it would give more genuine pleasure to grasp his hand as he crosses the frontier of the eighties, than my humble self. Failing strength forbids my effort to be with you in physical person upon this highly interesting occasion.

I, also, have crossed the frontier and have left it some distance behind and am obliged to acclimate myself to the limitations which age imposes. I shall be there, however, every moment of the time in spirit and shall await with intense and impatient interest the account of the occasion.

Please extend to my friend my most cordial greeting and congratulations and say to him for me that while I pen these lines there comes the thought, or rather the query to me whether the day may be reserved for my disembodied spirit from some far-off star of higher culture in this vast universe of mind to extend the hand of welcome to spirits such as his and those with whom we have labored for civilization, as has been my great privilege here. If such shall be the case, then will the riddle of existence have been solved for me and a paradise for which I have longed and hoped and prayed, been attained.

Faithfully and affectionately, your friend and colleague,

JOHN WILLIAM BURGESS.

It would be difficult, Mr. Chairman, to put into ten thousand words a more gracious, a more intimate, or a more just appreciation of the life and work of our friend, Dr. Clark. We so rarely have the courage to speak kindly of a man while he lives, that it is particularly gratifying to be able on an occasion like this, to say just what is in one's mind and heart. Man

after man among us, of excellence and capacity and character, closes the door behind him for the last time with very poor appreciation of the affection in which he is held by great companies of those who have lived and labored with him. What a satisfaction to a man crossing what Professor Burgess calls the frontier of the eighties, to be told to his face by a representative company of scholars and university men such as this, of their affection for his person, of their appreciation for his service, of their esteem for his scholarship.

The practical man always seems to me like the miner. He goes down each morning into his pit with such illumination as comes from the little lamp which is fixed on the peak of his cap, and he goes about his daily work with intelligence, with success, with industry, but without the remotest appreciation of what it is all about. He has no notion of how coal came to be where it is, or what is going to happen to the daily life and occupation of man when there is no more coal and some substitute for it has to be found. He has no suspicion of the intricacies of trade and commerce and finance that are built upon and grow out of the daily work of his hands and the hands of those placed like himself. He plays his part in isolated unconsciousness of the meaning of it all. It is the poet and the philosopher who understand what it is all about. It is the poet with his occasional lightning flash of genius who illumines our task; it is the philosopher who, by grasp upon it, by vision, by insight and power of interpretation, tells us what it all means.

This friend of ours is a philosopher, one of the not too many philosophic heads among our scholars who in this day of high specialization are, many of them, working with great industry and capacity on tasks, the meaning and interpretation of which they know not. Professor Clark has been a life-long philosopher, an interpreter. He has seen deep down into the root of principle; he has developed principle; he has applied and interpreted principle. He has made his place and his fame permanent, not by any patient and industrious accumulation and reclassification of facts, but by an insight which puts facts in their framework, in their proportion. He has led those of us who can follow his illuminating pen to understand the significance of economic life, of economic organization and of the economic process. This is what gives him his distinction and makes him in a sense the leader and founder of a school.

All over this land there are glad and grateful men of distinction, power and accomplishment, who are proud to call themselves men who have passed through his lecture room in years gone by. He is a captain of the mind who has recruited and trained and organized an army of believers in the mind and what the mind is and can do.

It is my fortune, happy fortune, to be intimately associated with him as friend and colleague for more than thirty years and to have seen him in another relationship where he had opportunity to reveal his power to a very wide audience. When the Carnegie Endowment for International Peace was organized by Mr. Carnegie seventeen years ago, a plan of organization was devised which put the work to be done into three classes or categories or divisions. One was to deal with intercourse and education,

with international contacts, with the instruction of public opinion, with making ways and means for the interchange of ideas, of familiarities, of acquaintanceships between men and things of different speech and race and origin and religion and form of government.

Another had to do with international law, with its evolution, its statement, its codification, its application to problems of the moment. The third had to do with economics and history.

The purpose of the last division was to subject war to a new kind of analysis, a new sort of study, a new interpretation. There is an immense literature on war in terms of military action, in terms of tactics and strategy, of armies and armor, of personal achievement, of courage, of vast undertakings strictly military and naval in character; but war as a human experience, a phenomenon, had never been subjected to what may be called a clinical study from the standpoint of the economist. What actually happens in war to the trade, the commerce, the industry, the finance, and food supply, the death rate, the birth rate, the thousand and one things which make up the subject matter of social and economic knowledge?

It was felt by the trustees of the Endowment that if we could summon the intelligence of the world to that task, we might make a contribution that for all time would set a standard and reveal and interpret a vast series of phenomena that would give us a new understanding of war, that would add indefinitely to its terrors and its horrors. In seeking the country over for a leader and guide into the field, the trustees selected Professor Clark. Even you gentlemen, well-informed as you are, probably do not realize what he then proceeded to do and how important it was.

He summoned to meet at Berne, Switzerland, in the summer of 1911, some eighteen or twenty of the leading economists of the world. If I were to go back over the records and recite their names, you would see that from Germany, from Italy, from Austria, from France, from Scandinavia, from England, from the United States, from Spain, from Latin-America, he summoned the acknowledged and undisputed leaders in economic thought. That group spent a week together in close converse and discussion, and they formulated a plan to be carried out coöperatively by them all, and by groups organized by them in their several countries, under the leadership of Professor Clark. That work was well planned, progress was made and a second conference was summoned to meet at Berne for the fifth day of August, 1914. Five of the economists had reached there before the blow fell. When the blow fell, it was of necessity a part of wisdom to await the arrival of the plentiful supply of new clinical material which the fates were about to provide.

That task planned by Professor Clark, inspired by him, guided by him, is going forward at the hands of his pupil and friend and successor, Dr. Shotwell, with the coöperation of some three hundred historians and economists in every land. We venture to think that, when completed, it will give to scholars, students, men of letters and journalists, an accurate source of original information as to just what happens to the economic and social and industrial life and organization when the world goes to a great war.

Professor Clark must always be entitled to the honor which comes from having conceived that plan, devised the method of its execution and started it on its way. The industry, the scholarship, the untiring zeal of Professor Shotwell, are making this great plan his own, as well as Professor Clark's; but Professor Shotwell would be the first to insist on saying now that it was Professor Clark's authority, genius and insight which made the plan originally possible. So whether I allow myself to speak of this great and noble American gentleman as an academic authority and scholar in his field, or whether I add an appreciation from the viewpoint of those who are associated with him in the large international work to which I refer, it all comes to the same thing. We are celebrating the achievement and the personality of a captain of the mind; and few things could be more worthy and few things more necessary in this modern world of ours.

One of the curious things about the mind is that it works less obviously now than it used to do. There did not use to be much of anything except mind, and everyone could see it and its manifestations. In the last three hundred or four hundred years there have come to be so many other things, that the mind may work pretty vigorously, pretty powerfully, and yet be like an Arizona river, fertilizing but out of sight. Here is a case where in the world of scholarship, in our American life, we have produced on American soil and by our own training and own opportunities, this captain of the mind. That he is eighty years of age surprises me. I suppose it must be a fact, because I am assured that figures do not lie; but I wonder! His mind has all the elasticity, the originality, and the vivacity of youth. As one of his oldest friends and associates, one of those most closely associated with him through the years, and one who is proud and yields to no one in his pride to salute him as he crosses what Professor Burgess calls the frontier of the eighties, I can only hope and pray that his physical strength may keep pace with that mind of his to the joy of us all and to the service of his fellows and of mankind.

The Chairman

When, between thirty and thirty-five years ago, Professor Burgess and his younger colleagues decided that the time had come to add to our numbers at Columbia, we cast about to see who the young men were,—for there were no available older men in the field,—who gave promise of achievement in economics and social science. We finally hit upon two young men at a little place in Massachusetts who had begun to pay attention to the newer developments in business and in industrial life, and especially to the problem of the trusts and the control of these huge aggregations. We found that these two young men were working together in preparing a series of studies on what they called competition and coöperation. It was our good fortune within a very short time to be able to invite both of these young men to come to Columbia, and ever since that day they have been engaged in coöperation and competition. They have coöperated with each other and with the rest of us in trying to build up the faculty of political science at Columbia and in developing the

economic and social sciences in this country. They have competed with each other in achieving great results; and what does not frequently happen to competitors, they each reached the goal of fame and success. Our birthday child, as the continentals call the guest of the day, soon became the acknowledged leader of the economists in this county; and his young friend and colleague rapidly achieved a similar position among those that began to call themselves by the novel name of sociologists. Accordingly, gentlemen, I have great pleasure in now presenting to you that coöperator and that competitor, my beloved colleague, Professor Giddings.

Professor Franklin H. Giddings

Mr. Chairman, Professor Clark and Gentlemen:

It is difficult for me to speak on this occasion because all I have to say is so suffused with the feeling born of my personal relations with Professor Clark that it must necessarily seem to you to be of an almost too personal character. In the days to which our Chairman has referred and when Professor Clark was the occupant of the chair of history and economics at Smith College, I was following the craft of the daily newspaper man in the neighboring city of Springfield. It was my good fortune soon after going there, to make the acquaintance of Professor Clark. The acquaintance quickly ripened into a rare intimacy and became one of those friendships destined to be lifelong in duration, and of the most helpful kind because it was from the first moment a friendship of mutual interest in ideas, in work and in ambitions.

At that time I was presumptuously writing editorials on such topics as the tariff and money, labor troubles and the like. My preparation in economics had been of a casual sort, consisting of a somewhat diligent reading of the old classical economists and a correspondence with two kindly friends, one, David A. Wells, the other Professor Arthur L. Perry of Williams College.

From the moment when I became acquainted with Professor Clark, I realized that I was in contact with a mind of a type that I never before had met. Professor Clark had worked out his philosophy of wealth, and we talked about it and about the various openings into which it seemed to lead. I was fascinated by it. I had not before realized the possibilities of developing economic theory as Professor Clark had then developed it. A thing that greatly interested me was that he clearly regarded this work of his not as an achievement, but as a mere beginning of things to which he wished to press forward. In our frequent interviews, visits and rides together in the beautiful Connecticut valley, we exchanged our notions about the changes that were taking place in the industrial world, the political world, and the social world, and the interpretation of them all in terms of new theoretical formulations which by that time had come to be regarded almost as old, accepted and established.

Professor Clark's first book, *The Philosophy of Wealth,* was a rare production in more ways than one. For one thing, it was the work of a master

of expression, of style; the clarity of it charmed everyone who dipped into its pages. But more than that, it was, as President Butler has so truly said, the work of a philosopher, a man who took a broad view of everything that his mind encountered and who could not be content with merely marshalling facts and drawing the ordinary inductions from them.

It was the work of a man who had seen that the whole subject of values needed complete revisualization and restatement, and who having undertaken so to view it, had stated all the fundamental problems of economic theory with such thoroughness, with such originality, that all who became interested perceived at once that here was a leader of thought, destined to work great reconstructions in our scientific view of the industrial life of our time, and of economic theory and of social progress, in general.

The remark has often been made that Professor Clark's work has been a masterpiece of lucid abstraction. We usually make a mistake when we so interpret him. He has given us abstractions, that is true, but not the abstractions which come when one starts from premises abstract to begin with, and by logical deduction creates a framework into which he brings concrete facts by way of illustration and exemplification. Professor Clark's work has been something entirely different.

From earliest manhood his mind has been informed and enriched with concrete material, with knowledge of the world in which he lives; and his abstractions, far from being a mere logical framework, have been an essence distilled from the concrete facts with which he has been familiar and with which he has worked. That is why his work has had such marvelous vitality. That is why it has charmed men. That is why it has caught attention and held it.

His interest from the time of our first acquaintance has lain in further development of the views at which he had then arrived. He was already busy with the problem of the limitations of competition which he saw arising on every hand, with the problem of what, in those days, was called the "pool" and was beginning to be called the "trust," the problem of combination. He was already forecasting restatements of fundamental theory, the theory of value, the theory of production, the theory of distribution, to which he was destined to make enduring contributions.

I remember distinctly an afternoon when we drove from Northampton to Amherst, when we went over a plan which he had outlined and which he presented to me, that he and I should write certain complementary articles, which we afterwards did. These were published in the *Political Science Quarterly*, and afterwards as a small book on *The Modern Distributive Process*. One article dealt with the limitations of competition, another with the persistence of competition; one dealt with the concrete facts and the theory of profits, another with the concrete facts and the theory of wages. That writing was the beginning of efforts which led Professor Clark on in one direction, and led me on perhaps in another direction; but, as our Chairman has said complimentarily, it was in a sense coöperative work.

A characteristic feature of economic theory at that time was its academic quality. Professor Clark was working along lines which many men thought were simply a projection of Professor Jevons' concept of "final degree of

utility," or of Wieser's concept of "marginal utility"; but when we realized what Professor Clark was driving at, we saw that he had a larger idea than those men had and that it was destined to be regarded as more fundamental.

There soon appeared his brilliant analysis of capital. He pointed out the distinction between concrete materials in which capital values are invested and which he called "concrete capital," and capital proper, or "pure capital," that can be turned in any direction desired. From this study Professor Clark went on to take up in like manner the question of distribution; and there, instead of simply accepting the so-called Austrian view of marginal value, he fixed upon a concrete phase and showed us that what counts is marginal productivity, the productivity, namely, of the marginal investment, of the marginal day's labor, of the marginal hour's labor, in the productive process. On the basis of this analysis he constructed a theory of distribution which I think all economists who have mastered it realize did not previously exist. It was not a mere abstraction. It was discovery by a man who perceived that production is a differential process and that marginal changes are the ones that count.

I shall never be able to express to Professor Clark or to anyone else my indebtedness to him. If I have been able to achieve something along the line of work that I have followed, it was to Professor Clark and one other man, a friend of his, to whom I have been most indebted. It was to Professor Clark that I owed my interest, which continues to this day, in economic problems and in economic theory, and it was the lamented Herbert B. Adams of the Johns Hopkins University, to whom I listened when I decided to give most of my attention to sociology. That was his advice.

I wish to say in conclusion that in all of my relations with this very dear friend, he has always been unselfish, he has always thought of others before himself, and he has rejoiced in nothing so much as in the achievements of those to whom he has been helpful and who have been indebted to him for that help. I hope that I have expressed a very deep sense of personal reverence, affection and gratitude to one of the great men whom it has been my privilege to know.

The Chairman

In the history of economic thought in this country there have been two stages. After the war with England, and when we had our earliest really important industrial and business crisis, the thinkers of this country for the first time began to turn their attention to economic topics. From 1817 on, the different colleges of the day devoted some attention to this new subject, although most of the topics that engaged public attention at that time related to the new-fangled institution called banks, as well as to the development of the money power and the little understood industrial and transportation development.

Half a century later, after the great Civil War, when the gradual disappearance of our free land caused the emergence in this country for the first time of the problems which we had thought peculiar to the old world,

there came a second renaissance, a second development of interest in economic problems. As there was no place in this country at the time where these studies could be pursued, there was a veritable exodus of these younger men, perhaps a dozen in number, to the continent of Europe. On their return they filled the newly created chairs of political economy in most of our leading colleges.

Professor Clark was the first of those younger men to go abroad. Shortly after he and the others returned, they founded the society soon to be known as the American Economic Association, and which from those days of small beginnings, has grown to be of considerable magnitude and importance. There were one or two older men to whom we gave what we and they considered to be the honor of the presidency. But when these men had served their time, General Walker and Professor Dunbar, the time for the younger men came. By universal assent, our birthday child was chosen to be the President of the American Economic Association.

Since his day there have been many presidents, and I rejoice to see in this august company tonight not a few of the past presidents of the American Economic Association. To one of them who is with us tonight is due the passing of another milestone in the history of economic thought. If, as Professor Giddings has told us, Professor Clark was responsible for the far-reaching distinction between capital and capital goods, the gentleman upon whom I now have the honor to call was responsible for another similarly important distinction in theory, namely, the distinction between capital and income. It was he also who approached economic problems from the psychological side, with its many economic implications. I have great pleasure, therefore, in calling upon our distinguished friend and colleague, the Professor of Economics at Princeton—Professor Fetter.

Professor Frank A. Fetter

Mr. Chairman and Gentlemen:

May I be pardoned for breaking in upon the monopoly that Columbia has thus far enjoyed? I bring a note, I trust not a discordant note, from the outer world. First I shall address our honored guest as a fellow Princetonian. A few months ago, over in Philadelphia, there was a sesquicentennial, at which the university of hard knocks conferred the world crown of pugilism upon the best man. About thirty years ago a sesquicentennial was held at Princeton, and John Bates Clark was the outstanding American economist upon whom an honorary degree was conferred. It is my business to help produce Princeton men, though I am not myself "a son of Princeton," but Professor Clark is a son of Princeton born in the year 1896 and by that token he is my son and I greet him as one of whom we are proud.

I would speak also as a student and a disciple of Professor Clark's. I never had the privilege of sitting in his classes as a student, though I was always envious of those who had; but I am one of that large company who have zealously studied his writings. These are so full of novel ideas and of

new points of view that they have engaged the attention of succeeding generations of students in the universities of this country and of other lands. Critics of the negative sort have searched for defects, have found flaws, have blamed him because he did not solve all the other problems besides those that he did elucidate. But I have been a critic only in the positive and friendly sense, gathering nuggets of wisdom from his rich mine of ideas.

Controversial matters should not engage our attention tonight; but if I might select from Professor Clark's contributions some candidates for the Hall of Fame of Economic Theory, I should name, first, his part in the reconstruction of the capital concept, the lessons of which are not yet fully appreciated. It is still influencing the reconstruction and reformation of economic thought. I should name, second, his universal law of economic variation, with its unifying effect upon the whole conception of economic theory. Then, if among various others I were to name a third, it probably would be his contribution to the theory of monopoly. That was a pioneer work, a work done at a time when, as many of you well remember, all men were groping. We know more of that subject today, and this is due largely to his leadership.

I have, however, mainly to speak tonight as the representative of the great guild of American economists. Here is not a field for controversy; here enter no disputes. I would refer only to those things on which the economists of America can unite without a dissenting voice. First we would honor the guest of this evening as a model of the newer and better standards of economic criticism. Anyone who knows even a little of the history of economic thought, must realize that some time in the last decades of the nineteenth century there appeared a finer spirit of economic analysis. In large part the economic literature of earlier periods was partisan in its concern with practical affairs, and motivated by pecuniary objects. Then, from among a little group of men, well represented by the Austrian school, there began to come essays of a finer, abstract, disinterested type of pure economics. It was purer in its intellectual quality and purer in the ethical sense, purer in the sense of being the search for truth for truth's sake. Böhm-Bawerk is a good representative; Wieser is a somewhat better representative; but the peer of them all is Clark. To him we owe most in America for that better approach that now is made toward a finer, scientific spirit in this most difficult of all fields where thought is so easily colored with human interest, with selfishness and with prejudice.

We that are members of the American Economic Association honor Professor Clark as our one outstanding personality of international reputation in the theoretical field. It is a paradox to European scholars that we should have produced such a man. They expect and they accept from America her manifold achievements in the practical field; but that here, out of practical America, there should have come an abstract theorist, rivalling and surpassing the best they could produce in the last three quarters of a century, is still a puzzle, a real mystery to them. The work of Professor Clark has gained an assured place in the world of economic

literature. There it will remain, conferring a lasting lustre upon American scholarship.

We honor Professor Clark also as the prophet of a more human and a more optimistic economics. In his twenties, when young men can see visions, he saw with his spiritual eye a finer, happier world, and in his *Philosophy of Wealth* he voiced his vision in a philosophy of optimism. Things have not moved exactly in the way, or perhaps to the degree that he then forecast them. Competition has not disappeared in the degree that his fancy pictured, nor did coöperation as a method of industry to that degree come to take its place. "A man's reach should exceed his grasp, or what's a heaven for?" But by and large, things have moved as Clark's prophetic eye saw they would; and he, more than any other man in America, I venture to say, has helped to transform economics from a dismal science into a philosophy of human welfare.

Finally, we honor Professor Clark as a man and as a friend, unpretentious, sincere, loyal, clear of vision, helpful to all those about him. It might be said of him as of the sage of Grand Pré, "Ripe in wisdom is he, and patient and simple and childlike." His clear counsel has directed many young men upon the right roads of scholarship, and along the right lines of life. In him we find the finest embodiment of the spirit of scholarship. In him we find the best fruition of that branch of philosophy which concerns itself with human happiness. So, dear friend, on behalf of the economic fraternity, I greet you. May you live long to enjoy the honors that you have so justly earned in the esteem of your fellow men, and the affection of your colleagues one and all in the economic profession.

The Chairman

We have heard much tonight of the various achievements of our guest. I fancy that if we were to ask him of what, on the whole, with all his modesty he is most proud, he would count, as I should count, his main achievement the fact that he has been responsible for the brilliant son who is with us tonight, and who is carrying still further into unknown regions the flag which his father in his day so successfully unfurled.

Before I call upon our "birthday child" to say a few words in response, I am sure that you all wish for him a happy recollection of this distinguished evening, and that we bespeak for him a continuance for many a year of that health and happiness, mental and physical, which it has been his good fortune to enjoy for all these decades. I therefore ask you all to rise and to drink to Professor Clark, from what it is only possible for us to do tonight, the clear water of affection, of veneration, of love and of expectation for the future.

Professor John Bates Clark

Mr. Chairman, Mr. President and Friends:

I think that if I should chance to find in any quarter of the city a

portrait of myself such as the one that hangs in the other room, I should be able to identify it; but if I should encounter in print a word portrait such as we have just listened to, I should at once begin searching for the man to whom this prize should be awarded. Nevertheless I am as grateful as a man can be to those who are able to say those things under the influence of the priceless friendships which I take in full measure, without demurrers of any kind. The sentiments I return in full measure; but to express them fittingly, I should need, as the Scripture says, "to speak with the tongues of men and angels." I have thought of trying to condense into a speech Cicero's two essays on *Friendship* and on *Old Age*—the two subjects that are germane to the meeting tonight. I should have to append a supplement showing the relation of friendship to old age—showing you how powerfully friendship tends to extend life into the old age period. That is the reason I reached my eightieth birthday, and I thank you for bringing me to it, and for still treating me so kindly as to encourage the hope of further years. I invoke the same blessings in full measure for you all.

Cicero's essays would have made rather a long speech and therefore I am going to take as mine the speech of one of my fellow townsmen made in my early days. I am going to give you the whole address verbatim, as made by General Burnside of Civil War fame. It was with great difficulty that he could be persuaded to appear in public, when that involved a speech; and, when he made one, it was brilliantly brief. When he came back from the Civil War to be Governor of the State of Rhode Island, and a great reception was tendered to him, the speakers vied with one another in friendly compliments; and all that he was able to say, by way of response, was, "I am much obliged to you, my friends, for your kind regards." His friends accepted that, as being the most appropriate thing he could say on the occasion; and they read the fullest measure of meaning into every word. I should like to say just here and now that I am profoundly obliged to you, my dear friends, for your very kind regards.

Now as we cannot have a longer speech from General Burnside and cannot afford to take the very long one from Cicero, I am going to avail myself of one of the "rights and privileges" which attach to the conferring of an academic degree. I take it that you have conferred on me the degree of Octogenarius "with all the hereditaments and appurtenances thereto in any wise appertaining." One of these is the privilege of telling stories of the past; and I want to tell of one little incident which has its application. When I was five years old I went to visit my great grandfather, who was then ninety-seven years old, and who, in 1775, had been in the first revolutionary army, called to drive the British out of Boston. He had served through a great part of the war. I saw him, conversed with him, and sat by him at the table, and I have his journal, kept during the war. Now that enables me to say that, at second hand, I remember the American Revolution. I have direct testimony about it, and I remember a great many things which happened after that date.

Of the things best known are the success of the Revolution, the formation of the Federal Union and the adoption of the Constitution of the

United States; also the French revolution and the rise and fall of Napoleon. The greatest thing that has happened in those one hundred and fifty years, however, perhaps we do not often fully grasp. We know that this is an age of machinery, that wonderful mechanisms have been invented, that the process of making things of all kinds has radically changed. We know that, before the period, there was scarcely any machinery in existence. The first steam engine only arrived at about that identical time. Textile machinery consisted of spinning wheels and hand looms. The enormous mass of machinery that is now at work is a new development; and it falls within those one hundred and fifty years. With it has come a complete reorganization of the economic life of mankind. It is now as utterly unlike what it was formerly as it would be if we had acquired the power to "summon spirits from the vasty deep" to do our work for us.

"Quantity production" has ensued, and the countries that develop it can defy competition from any other quarter on earth. This has meant great corporations, which terrified us at first, though we discovered that they could be tamed and made to resemble working elephants rather than dinosaurs. They are working now and performing an indispensable function in world economy. They are helping to unify the life of the human race. There is no such thing as a really "national" economic system if, by that, we mean an activity confined within by the boundaries of any state. Economic society is world wide. Commercial laws and treaties have very little value unless they are inspired by a recognition of the essential unity of this great natural organism.

Now the transformation of the old system into the present one is so complete that if a man of 1775 should come to life again and look about, he would think himself on a wholly different planet. He would recognize scarcely a trace of the economy he was used to take part in. If we should take him to a great department store and ask him to find something made by hand, he would have trouble in finding it. Only a microscopic part of the entire output is so made. All of it is wholly or in great part the product of machinery, much of which is automatic. It is as though the "genii of the lamp" were everywhere ready, at call, to create all manner of products in Aladdin-like profusion.

Our visitor from the world of our grandparents would find that, in lieu of trade guilds, we have labor unions of a kind that he knew nothing of; and our corporations would strike him as something imported either from the celestial world or from the nether one. Holding companies would assuredly alarm him. The change that has meant all this has occupied only about a fiftieth part of the time covered by authentic history; and it is very much greater than the sum total of all previous changes that have fallen within that period. Men have made larger practical gains in a fiftieth part of the historic period than they had made in the previous forty-nine fiftieths of it.

I am speaking primarily of changes in the economic system, and of those further changes which necessarily accompany them. The world is a different world, though the material substance of it is what it was. The dominant part of the life it sustains—the human part of it—is one great organism.

That means a unifying of thought and feeling as well as of practical action. A great number of changes are involved and I am not going to recite them, but they have much to do with the question of future war and peace. That question is not settled, and no one can accurately judge as to the outlook; but some things we can know. Since the treaty of Westphalia there have been intervals of peace tending, on the whole, to grow longer. There have been three attempts to restore the ancient system of great empires and the world has gathered its forces and successfully resisted those efforts. The modern world has never been subjected to great monarchies like those which gave to the ancient world nearly all the peace that it ever enjoyed. Within their boundaries there was a large measure of peace, but very little freedom, while beyond the borders, there was more freedom than peace. That lived only under the shadow of despotism.

The question of the present day, aside from that of further practical arts, is whether the unifying of the world, which has come about by an economic evolution, will lead us to a peace that can coexist with freedom. Is peace consistent with the independence of states? It is so if the organic unity that the economic system creates can be carried over into the realm of international politics. An heroic effort has been made to do exactly that. A league of nations now exists and has the support of most countries though Russia is not in it and, unhappily, America is not so. I am as proud as I can be of my country, in almost everything that falls within the sphere of economics. My pride is a negative quantity when it comes to international politics. What I should like to see is the spirit of world economics in some way penetrating world politics, and I should like to see my country lead rather than obstruct this noble and redeeming movement.

That is all the economics and politics that I shall indulge in just now; otherwise I should be tempted to go much farther. I repeat my expression of gratitude to you all, for your kind regards, for your inspiring presence, and for something that will give me, not merely a day of happiness, but what I have the audacity to hope will be a reasonably long evening of life and similar happiness. All this and much more I hope and earnestly invoke for you all.

GUEST OF HONOR

Professor John Bates Clark

SPEAKERS

Dr. Nicholas Murray Butler
Professor Frank A. Fetter
Professor Franklin H. Giddings
Professor Edwin R. A. Seligman

GUESTS

Eugene E. Agger
Benjamin M. Anderson, Jr.
James W. Angell
Stephen Baker
George R. Beach
James C. Bonbright
Clarence W. Bowen
Wendell T. Bush

Edward W. Capen
Harry J. Carman
Robert E. Chaddock
John Maurice Clark
Julius H. Cohen
John W. Davis
Edward T. Devine
Frank H. Dixon
William J. Donovan
George Filipetti
Irving Fisher
Austen G. Fox
Fabian Franklin
H. G. Friedman
Henry B. Gardner
Edwin F. Gay
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F. B. Hawley
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Walker D. Hines
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Willard V. King
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Oswald W. Knauth
Samuel McCune Lindsay
Howard Lee McBain
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Frederick C. Mills
Wesley C. Mitchell
Parker Thomas Moon
Newbold Morris
Dwight W. Morrow
George D. Olds
William B. Parsons
George B. Pegram
Michael I. Pupin
Jackson E. Reynolds
George E. Roberts
William W. Rockwell
Lindsay Rogers
Victor Rosewater
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H. Parker Willis
Frederick J. E. Woodbridge